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Bulletin

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SAUNDERS, *Publishers* **See Pages 3, 4, 5**

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THE DIAGNOSIS OF CANCER*

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NEW YORK

The keynote of the modern diagnosis of neoplasms is the recognition of many distinct clinical and pathologic entities in the vast field of benign and malignant tumors. It is no longer possible to content oneself with the simple report that the case is carcinoma or sarcoma. It is necessary to know what exact type of carcinoma or sarcoma is present, what the extent of the disease may be, what degree of malignancy is concerned, and what the natural history of the disease will reveal. In other words, it is necessary for the pathologist and clinician to form a clinical diagnosis and not rest merely on a histologic report.

The introduction of radiation treatment has emphasized the importance of the finer diagnosis of tumors, for without accurate knowledge of the structure and natural course of the disease, the radiologist is seriously handicapped. The surgeon also needs such knowledge for the intelligent conduct of the treatment of malignant tumors. For example, cancer of the stomach occurs in the form of linitis plastica, which may run a slow course of fifteen or twenty years, and it occurs also as a highly aggressive process which kills in three or four months. The entire attitude of the physician in charge must be radically altered to meet the different indications of two such widely separate conditions.

Such cases illustrate the principle that different forms of carcinoma or sarcoma of the same organ may present such widely different clinical features as to constitute them different diseases. In the extensive group of bone sarcomas, as recently revealed by the Codman Registry of the College of Surgeons, there are even wider distinctions, which call for very different plans of treatment and assure very varied prognoses. Therefore, if the laboratory is to furnish fully serviceable reports to the clinical departments, the pathologist must have at his disposal not merely a microscope, but also a wide acquaintance with the disease under study and a clear discernment of the particular phase of the disease with which he has to deal.

In order to accomplish these results, the pathologist must have a well equipped laboratory, and must himself serve as a consultant by acquainting himself with all the clinical aspects of the disease. This situation can be met only by the most cordial cooperation between the laboratory and the clinic.

One of the most prevalent handicaps to the laboratory diagnosis of tumors is inexpert technic in the preparation of microscopic sections. This difficulty seems to be due to incompetent and poorly paid technicians, haste in the demand for reports, lack of time to study the sections properly, and inadequate clinical data. Dr. Prudden used to post in his laboratory the legend, "No specimen will be examined in this laboratory which is not accompanied by clinical data." Many errors would be avoided if this plan were generally followed. These data should include at least the age of the patient, the clinical diagnosis and the exact location of the tumor. Other significant features will generally suggest themselves to the intelligent surgeon, but too often have to be dug out by consultations with house staff, nurses and surgeons. The story of previous treatment often clears up deep obscurities in the laboratory.

The pathologist is often asked to glance at a section and give an opinion. Having been confronted with egregious blunders said to have been given verbally, I have concluded that it is wiser never to express an opinion in a difficult case, but always to write it out, stating the fact that essential data may be missing.

Early reports require faulty fixation of tissue, resort to the freezing microtome, and often snap judgment. In simple cases a correct diagnosis may be made under these hazards, but under many circumstances the obligations of the laboratory to furnish attested facts cannot be met by such methods. In examining lymph nodes especially, it is of first importance to obtain good fixation of material before risking any opinion.

In a considerable experience with sections sent to me from various parts of the country, I have been impressed with the large number in which the only difficulty in diagnosis resulted from poor fixation, cutting and staining.

Dr. Mallory has rendered a valuable service by insisting on the importance of good fixation and technic in the study of surgical material. But the technician must not only read "Pathological Technique"; he must also have experience and instruction. It may be worth while to state that while good sections may sometimes be obtained in a few hours from formaldehyd fixed tissue, it generally requires two or three days' fixation for satisfactory results. Without good fixation, no subsequent efforts can avert failure.

THE FROZEN SECTION

Much value attaches to the frozen section method in the diagnosis of tumors, but I wish here to point out some of its limitations, because surgeons generally feel strongly entrenched when they can refer to an efficient service in this matter.

The frozen section immediately reveals the nature of many tumors, but usually only those which an expe-

* This paper, together with the papers by Drs. F. C. Wood, J. D. Dunham and E. S. Judd, are part of a symposium on cancer. The remaining papers, by Drs. M. F. Engman and J. T. Case, together with the discussion, will be published next week. The symposium will be published in pamphlet form.

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rienced pathologist can recognize by gross examination. It thus tends to discourage the careful gross examination of the tumor. The five or six minutes consumed in making a frozen section may often better be spent in a more careful search and ocular inspection of a suspicious breast. The frozen section can be applied only to those portions of tissue which are selected as suspicious. I once pronounced as benign a breast in which ten such suspicious nodules were discovered at operation. Subsequent careful leisurely examination of paraffin sections showed that four of these nodules were really suspicious and might have been pronounced cancer in frozen sections. The recognition of extremely minute foci with many of the histologic features of carcinoma generally leads to the diagnosis of cancer at the operating table, but it is very doubtful if such a diagnosis is warranted in the clinical sense. Clinical carcinoma of the breast is almost always clearly recognizable in the gross. There are also not a few alterations in the breast structure which are extremely difficult to recognize in frozen sections, and even in paraffin sections, such as epithelial proliferation in chronic mastitis, inflammation in fat tissue, and proliferation about small butter cysts. Having made more errors by the frozen section method in breast cases than by the gross examination, I have not resorted to frozen sections in this field for many years, but rely almost entirely on gross inspection of the breast tissue. Many of my colleagues report to me the same tendency.

The cancer surgeon should become highly proficient in the recognition of cancer by sight and touch. No aid from frozen sections can replace this capacity.

THE GROSS ANATOMIC DIAGNOSIS OF CANCER

The gross characters of malignant tumors are extremely varied, but as a rule tumor tissue and structures infiltrated by tumor cells present easily recognizable features that can be recognized by sight and by touch. Induration is the most uniform sign of a carcinoma which excites the growth of connective tissue, but many cellular cancers are soft and opaque. In the breast the great majority of cancerous nodules are firm and inelastic, and sharply circumscribed as the edge invades fibrous or fat tissue, and the cut section exhibits characteristic yellow or chalky points and streaks due to fatty epithelium lying in more translucent connective tissue. It is surprising to many how accurately the diagnosis of mammary and other cancers may be made by close adherence to these criteria. The distinction between cancer and inflammation of fat tissue may usually be made by observing the limitation of the inflammatory process to fat lobules, irregularly placed; but the induration of inflamed fat tissue may be quite as great as that of cancer. When papillary adenomas arising in cysts become cancerous, the fact is revealed by greater opacity, chalky streaks, and fixation of the capsule of the cyst. Axillary lymph nodes, atrophic, but invaded by fat tissue and very firm and encapsulated, are often mistaken for cancerous nodes. True cancer renders the nodes rigidly hard and very opaque.

Carcinoma in cervical nodes is often difficult to distinguish from inflammatory hyperplasia, but the diagnosis can generally be made on the distinct opacity and firmness of the tumor focus, whereas the inflammatory node, while firm, is not very opaque.

Ulcerating gastric cancer may require careful microscopic study, but the malignant lesion may usually be detected on vertical section of the ulcer by the presence of fixed indurated edges and markedly opaque spots of cancer cells. Most ulcerating adenocarcinomas of the stomach show markedly protuberant edges composed of opaque tumor tissue.

A considerable treatise could well be devoted to the practical discussion of the characteristic gross features of the various forms of malignant tumors of the body.

ROENTGEN-RAY PHOTOGRAPHY

Roentgenography has greatly enlarged the opportunities for the study of the gross anatomy of tumors. It should correspondingly diminish the indications for biopsies and exploratory operations. The pathologist should be thoroughly familiar with the data thus revealed and become an expert in their interpretation. In the field of bone tumors and in several other departments it has become an indispensable aid in diagnosis. There are comparatively few bone tumors that cannot be somewhat accurately classed by means of roentgenograms and clinical signs, and I have often found that the conclusions drawn from the roentgenograms lead to rather more serviceable results than the study of fragments of tumor tissue taken under difficulties. Without the control of the roentgenogram, the diagnosis of bone tumors labors under severe handicaps. The roentgen ray is also of great service in excluding an osteogenic origin of tumors.

THE BIOPSY

Cutting out a portion of a tumor for diagnosis is a method that renders great service in the recognition of tumors, but it is one that should be practiced with the greatest caution. The indications for a biopsy are in inverse proportion to the skill and experience of the surgeon and pathologist in interpreting the gross signs of tumors. Yet in many instances it becomes an indispensable aid. The removal of a small, carefully selected portion of an accessible tumor seldom results in any harm. Cutting through the skin to excise a portion of a breast tumor is generally to be discountenanced. It is better to remove the whole tumor and follow immediately by the procedure indicated by the results of pathologic diagnosis. It may possibly be safer to excise at once certain doubtful breast tumors for diagnosis, rather than submit them to oft repeated manipulations by several consultants, staff members, nurses, patient's friends and operating room attendants. The incision of encapsulated malignant tumors growing under pressure is nearly always harmful, and may be disastrous. I have several times seen the removal of sarcomatous lymph nodes for diagnosis followed by severe hemorrhage, infection and exacerbation of the disease. The therapeutic test by radiation is generally far better and safer. It is my personal belief that the incision into bone tumors is one of the last steps to be taken in the diagnosis. Such incisions stimulate growth by release of pressure; they lead to infection in many instances; uncontrollable hemorrhage may develop in the very vascular tumors, and often the portion of tissue fails to yield a satisfactory conclusion or even leads to errors that might be avoided by other methods of study.

The use of the cautery to remove the tissue has been widely recommended, yet the grounds for preferring the cautery over the sharp knife have never been satisfactorily established. I myself prefer the knife. The sterilizing action of heat is assumed to destroy the loose tumor cells and prevent embolism and infection; but heat destroys more tissue than the knife, and leaves dilated capillaries and arterioles into which growing cells may more readily penetrate. Cleanly incised

tissues bleed and thus tend to wash out loose cells. The cautery is more painful and more difficult to manipulate.

Much ingenuity has been employed in designing instruments for the removal of small portions of tumors in inaccessible locations, the larynx, esophagus, stomach, rectum, bladder and prostate. While the material thus obtained often leads to positive and safe diagnoses, it sometimes requires even greater ingenuity on the part of the pathologist to escape error by attempting to secure from such fragments more information than they really yield. Yet correct diagnoses may at times be made on fragments of tumor tissue in the sputum, stomach washings, urine and other excreta. I have indulged the hope that the dangers of diagnostic curettage in suspected corpus carcinoma might be avoided by the examination of the discharges from a cancerous uterus, but have never been able to induce any surgeon to admit the slightest restrictions on this time honored but perhaps much abused trademark of the gynecologist. Sampson's observations on the enforced migration of endometrial fragments suggest that endometrial carcinoma may sometimes be disseminated by curettage.

DIAGNOSTIC AIDS FROM RADIATION

The results of radiation therapy have revealed some interesting data that may be useful in diagnosis. Giant-cell tumors of bone respond to external radiation by preliminary swelling followed by regression and restoration of the shaft, while most osteogenic sarcomas exhibit no such changes or respond very slowly. A differential diagnosis may be reached and the case successfully treated in this manner. Very cellular myelomas and other round cell tumors also yield promptly to radiation, while tumors that form bone or much interstitial tissue are resistant.

Many lymphosarcomas melt down rapidly under radiation, and leave little fibrosis, while Hodgkin's granuloma is more resistant and generally leaves cicatricial masses. Simple hyperplastic tuberculous lymph nodes gradually recede under radiation, but if there is caseation or suppuration, the shrinkage is slight and the inflammatory process continues.

Areas of chronic mastitis become swollen and indurated under radiation, while cancerous masses generally recede notably and leave very hard cicatrices.

Cellular testicular tumors recede promptly under radiation, while the adult types of teratoma with cartilage and epidermoid cysts (hydatid disease) show no such changes in volume.

Vascular fascial sarcomas of the intermuscular planes yield to radiation, while the ordinary neurogenic sarcoma is extremely resistant.

It seems probable that these and other such data will eventually form an important body of diagnostic criteria which will replace many operative procedures.

THE INTERPRETATION OF MICROSCOPIC STRUCTURE

From the study of stained sections, the pathologist is not content merely to determine in which general class the tumor falls. It may be necessary to conclude that the process lies in an intermediate territory between inflammatory and neoplastic lesions, as in many diseases of the lymph nodes and in chronic inflammation of mucous membranes or other glandular organs. Here a thorough knowledge of the doctrine of precancerous lesions, of their variable morphology, and of the dangers of prophesying too freely about their outcome, are required of the pathologist. In dealing with precancerous lesions, it is generally safe to regard them as benign if there is any doubt about it. They should not be included in the statistics of cured cancers.

If the lesion is a true tumor, it is necessary to determine its exact position in its class. One separates sharply, perhaps too sharply, between the entire group of basal cell carcinomas, in skin, salivary glands and pharynx, and the squamous carcinomas, because the former are comparatively benign and seldom invade the lymph nodes. In nearly all the glandular organs there are many grades of adenomas, adenocarcinomas and true fully developed carcinomas, with corresponding variations in clinical course, all of which the pathologist should endeavor to point out. The gross material is often necessary for this purpose, and clinical data are essential.

It is highly important to determine whether one has a cellular anaplastic carcinoma or an equally cellular but much less malignant embryonal tumor. Here a very common error, which French authors have pointed out, is the confusion of a round cell anaplastic carcinoma with round cell sarcoma. One should never make a diagnosis of round cell sarcoma. A sarcoma composed of round cells may be a lymphocytoma, a reticulum cell lymphosarcoma, leukemia, pseudoleukemia, melanoma, an anaplastic carcinoma, a myeloma, an endothelioma, or possibly an undifferentiated fibroblastic tumor. Under such circumstances, further study is needed to make the laboratory report of much value. "Alveolar sarcoma" was disposed of many years ago.

It is probable that the only spindle cell sarcoma of the skin and subcutaneous tissues is a neurogenic sarcoma, which runs a characteristic clinical course. It is obviously far better for the surgeon to receive a diagnosis of neurogenic sarcoma than spindle cell sarcoma.

Dr. Frank Hartley used to consider tumors and other diseases from the regional standpoint, and he would enumerate the possible sources of a tumor of the thigh or other region at all levels from the skin to the bone marrow. The pathologist should possess such information, and not render a diagnosis of some condition that has never been known to exist. Unfortunately, this is a heavy demand on the pathologist and one that cannot always be met.

In short, the pathologist should endeavor to render a clinical diagnosis and not merely a histologic report. Hence all available data in the case are frequently required, and the investigation will often lead to the examination of the patient and a consultation with the physician in charge.

The laboratory is sometimes called on to express opinions regarding the probable clinical course of a tumor that has been fully classified, especially regarding the likelihood of metastases and of rapidity of growth. The surgeon often encounters paradoxical results, both good and bad, for which there must be some explanation. On this point, important data may be obtained from a careful study of the gross specimen and of many sections from selected areas. Complete encapsulation is one of the most important good prognostic signs, while rupture of a capsule, spontaneous or traumatic, often rapidly transforms a comparatively good into a very unfavorable prognosis. This rule is especially important in bone sarcoma. Invasion of blood vessels by tumor cells generally carries a very

bad prognosis. Graham has recently shown that in a wide variety of thyroid tumors, apparently both benign and malignant, the occurrence of metastases was heralded by the presence of tumor cells in the blood vessels. Certain carcinomas of the breast early invade the blood vessels and yield widespread metastases when least expected.

The presence of lymphocytosis and fibrosis about invading mammary carcinoma generally signifies some degree of local tissue resistance, but I have not found them very reliable signs of the outcome of the disease. Such features often mean inflammatory reaction from infection, or local regression in an old focus, while other areas are advancing without reaction. Nevertheless, the most malignant mammary cancers often fail to show any such histologic signs.

CONCLUSION

From the foregoing review of the methods and objects of tumor diagnosis, the conclusion may be drawn that this function of the laboratory cannot be accomplished solely by the microscope, but includes the gathering of data from all available sources, and their estimation with the object of establishing a clinical diagnosis of the disease in question, and further of determining as far as possible the stage of the disease and its prognosis.

THE EXPERIMENTAL PATHOLOGY OF CANCER*

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The experimental study of cancer in a real sense began about 1900 with the discoveries of Jensen and Loeb concerning the relatively easy transplantability of certain spontaneous tumors of mice and rats from one animal to another. This, like most other discoveries, had long been anticipated, though Jensen's thorough investigations still stand today as a model of scientific achievement.

METHODS AND CONDITIONS OF TRANSPLANTATION

The methods and conditions that underlie such transplantation are still too little known, even to pathologists. The preferable technic was found years ago to be the grafting into the subcutaneous tissue of the axilla of the animal of a very small tumor fragment weighing only a few milligrams, by means of a trocar and cannula. The syringe injection of a mush of tumor cells is often followed by growths, but is not so satisfactory as the trocar method. Once the tumor particle is deposited in the loose subcutaneous tissue of the axilla, it is protected from injury, and can easily link up with an ample blood supply from the axillary vessels.

After a century and a half of experimentation, it has been found that the transplant must be to a homologous strain. Mouse tumors of high virulence can be transplanted into rats, and rat tumors into mice; but such grafts last only from two to four weeks, depending on the virulence of the graft itself. One hundred and twenty years ago, the attempt was made to graft human tumors into dogs, and occasionally some one tries it again; but the only successful heteroplastic grafts are those in the unhatched chick embryo, which is not able to mobilize its protective forces in response to the presence of foreign protein; and inoculations into the brain of some of the rodents, such as rabbits, where the general immunity response is slow and ineffective, giving the heterologous tumor a chance to proliferate for a considerable time.

It is well known that better results as regards the percentage of takes are obtained in homozygous animals; but even in such a pure bred strain 100 per cent. of takes is not obtainable, for there are many variables in inoculation technic. In the first place, most of the cells of the tumor particle die, and the ultimate growth is derived from the very few that remain. Secondly, unless prompt vascularization takes place, the few remaining cells of the graft die. Highly virulent tumors take in a higher percentage and are more apt to grow progressively than those of low virulence. Many of these fluctuations in the number of takes are unquestionably due to purely accidental circumstances and not either to soil or to tumor, as has been shown by Wood and Curtis.[1] There is a great variability in the soil. For example, one strain of rats may be the optimum soil for the cultivation of one type of tumor and refuse to grow any other, while in another strain of rats, just the opposite will be the case.

These transplanted tumors are not exactly the same as the primary tumors of man or animals. They are simply fragments of cancer tissue derived from one animal and growing in a healthy host, which acts as a culture tube. The adaptation to the soil is therefore never perfect, though the slight chemical differences are rarely sufficient to give rise to antigenic phenomena, such as complement fixation, precipitins and anaphylactic sensitization. But the growth of such an inoculated tumor does change the composition of the blood quite considerably, such blood returning to the normal only when the tumor is removed or spontaneously disappears. Alterations of this character, however, also occur in primary tumors in the human being and in pregnancy, so that they are merely indicative of a growth of tissue in the body. Such transplants, however, have many of the morphologic and biologic qualities of the primary tumor from which they are derived, and in consequence their value in investigations of the biology of tumor growth is very great, quite analogous to the great importance in the study of infectious disease of the introduction of cultural methods by Pasteur and Koch. For, just as in bacterial cultures, we are able to study an isolated cell material, more or less free from the complications introduced by the growth processes of the body.

BIOLOGY OF TRANSPLANTED TUMORS

In making intelligent use of such transplanted tumors for experimental purposes, it is necessary to be very familiar with their biology. A farmer planting 100 grains of corn would not expect that the height of every plant would be the same at the end, say, of three weeks. He would realize the great variability of growth under these circumstances, and also the fact that an occasional seed does not germinate. Too often a research man will generalize not from 100 but even from twenty tumors, and in a material that is enormously more variable than corn. The literature abounds in illustrations of erroneous conclusions based on the observations of a few inoculated tumors.

The only way to eliminate these errors is to repeat the experiments over and over again so that large num-

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1. Wood and Curtis: Proc. New York Path. Soc. 22: 179 (Oct.-Dec.) 1922.

bers of animals are inoculated. When this is done, there is obtained what may be designated as a standard value of takes, regressions and growth rates, which will be approximately the same year after year when the tumor is transplanted into a pure bred or closely bred strain of animals. Thus the application of statistical principles is of extreme importance, and some knowledge of correlation tables, standard deviations and of the methods of the construction of a life table should be part of the preliminary training of every laboratory worker in cancer. Many of the questions concerning tumors are similar to the human life table. Such a table says nothing about a single individual. It merely states that, in a given locality and excluding extraordinary epidemics, the deaths per annum among a million white males at a given age will amount to such or such a figure. The best attest to the accuracy of this figure is that, using it, life insurance companies are able to make money.

PROBLEMS ATTACKED

Of the many problems that have been attacked by means of the use of transplanted animal tumors, I can discuss only a few here.

One of the first facts of great biologic interest concerning grafted tumors was noted by Loeb, who found that for no evident reason such grafts occasionally disappeared. This fact has been widely studied without any determination of the underlying causes of such disappearance. Often, the soil seems to be responsible for the phenomenon, a tumor taking in a high percentage in one strain of animals and growing progressively, and in another strain disappearing in a large proportion of instances. Also, the recessions vary somewhat with the time of year and the site of inoculation. Woglom has made a careful study of the problem, and has suggested that such recessions may be largely due to thrombosis of the vessels of the tumor. It is well known that tumor cells contain some of the substances which facilitate coagulation, and when they grow through the walls of the veins or arteries may start the deposition of fibrin and the formation of an occlusive thrombus. Under these conditions, the tissue vitalized by the particular vessel undergoes necrosis. This may induce further involvement of other vessels and ultimately the disappearance of a large part of the graft. If a fragment is excised just before the tumor disappears and is grafted on a fresh animal, its vitality may be considerable, showing that it is not a cytotoxic or similar reaction on the cells which is responsible for the phenomenon. In other instances, the unsuitability of the soil is evidently the cause, as in the case just mentioned with different strains of animals. When this was first observed, it was hoped that a study of the conditions under which it occurred might lead to hints of value in determining the disappearance of primary tumors—of obtaining a cure. But so far no means has been found of artificially influencing the regression of a transplanted, far less a primary tumor, by any means except its physical destruction by radiation or heat.

Jensen was one of the first to be deceived by the phenomenon, and he believed that he had obtained a curative serum by treating rabbits with tumor material, but afterward acknowledged that the whole effect was due, not to the serum, but to unknown causes. The same source of confusion led to Wassermann's fiasco with selenium-eosin, and to the failure of Hodenpyl's attempt to cure cancer by an injection of ascitic fluid from a patient who had a receding carcinoma, and to many other well known examples of alleged cures.

How deceptive this phenomenon is may be shown by an experiment which was conducted in my own laboratory to test the alleged therapeutic value of colloidal silver. In the first run of inoculated animals the controls showed only a few disappearing tumors, whereas in the animals that received colloidal silver a large number of tumors disappeared, so large that it was statistically significant. But on repeating the experiment with another large series of animals, exactly the opposite phenomenon was observed: the untreated tumors disappeared in a large percentage, whereas those treated with colloidal silver showed little or any effect. The only method of preventing such errors is the use of a very large number of animals in series of, say, fifty or 100, testing one set with the alleged cure and keeping the other as controls and repeating the experiment over and over again. If one is so fortunate as to have a tumor which practically never disappears, such as Tumor 180 of the Crocker Laboratory, all "cures" immediately cease to be cures, for tumors of this type are uninfluenced by any treatment except the well known physical methods.

IMMUNITY

Gaylord long ago observed that, after the spontaneous disappearance of a tumor, the animal was frequently resistant to subsequent inoculation, and this was again thought to offer a lead toward a cure, and a vast number of experiments have been performed, both on human beings and on animals, to elucidate various aspects of this phenomenon. Unfortunately, while such immunity to subsequent transplantation does exist, it is extremely variable, not necessarily persistent, and it has not the slightest influence on an established tumor. There are many tumors also against which resistance even to inoculation cannot be induced by any method. Even by competent workers it is not at all appreciated how ineffective and variable this resistance to implantation is in many cases, and too often it is carelessly assumed that there is immunity to the established tumor and not solely immunity to the inoculation.

The phenomenon has led to a large number of attempts to influence human cancer by inoculating ground-up tissue from the patient's own tumor. Coca's experiments on human beings seemed promising at first, but finally it became evident that the procedure was of no value, and in the hands of other workers a series of unfortunate transplantations occurred due to imperfect destruction of all the cancer cells, which led to the abandonment of all work in this direction. Recently the method has been revived by Lazarus-Barlow and his collaborators by using tumors that have just been killed with radiation. Unfortunately, the animal tumor used was one which often immunizes against implantation and also is apt to disappear spontaneously, and this led to the assumption that something important had been discovered; but Haaland had already tried this method years before and found that inoculation of tumor material killed by radiation produced, if anything, hypersensitiveness to tumor implantation. If a tumor is used which does not spontaneously disappear, it will be found that tumor cells killed by radium or roentgen ray do not even incite sufficient immunity always to prevent transplantation, far less to interfere with the growth of an established tumor. A considerable series of clinical experiments have been carried out in England, and it is unfortunate that the negative results that would have been obtained if a sufficient variety of animal tumors had been tested

were not available in time to prevent the work from being done on human beings.

Most of the serums that have been tried have no scientific foundation for their use. Too frequently an assumption is made that some saprophytic organism, which may be present in any tumor, is the cause of the growth, and animals are immunized with mass cultures of the isolated bacteria and attempts made to cure tumors with the serum. If care is taken to select a tumor which disappears in 40 or 50 per cent. in untreated animals, the inexperienced beginner in the subject may imagine that he has accomplished something. The trained worker knows that if there is anything which the work of the last twenty years has demonstrated, it is that bacteria are not the exciting cause of cancer, that they are frequently present in the normal tissues, a fact known for at least thirty years, and that in most instances they are harmless saprophytes. Nevertheless, scarcely a month goes by that some alleged treatment of this type does not appear, and even the medical journals still contain occasional articles announcing the discovery of the bacterial cause of cancer and the inventor's belief that he is curing human cancer. This may be pardonable in those without training in methods of bacteriology and cancer research, but it is not pardonable in the trained laboratory worker.

The same discouraging situation exists in regard to the various chemicals, drugs of all types, and so forth. There is no evidence that these affect the growth of a transplanted tumor. If, therefore, a transplanted tumor, which is a neoplasm in a foreign soil, is not influenced, it is much less likely that a primary tumor, which is a perfectly adapted growth in its native soil, will be affected.

Thus, all the high hopes of twenty years ago have not led to a cure; but it must not be thought that the use of transplanted tumors has been barren of all results. Extremely interesting biologic facts have been discovered, some of which have considerable practical interest.

BIOPSY

For example, it has long been held by a group of surgeons that the incision of a tumor was extremely dangerous, and hence absolutely contraindicated. As the diagnosis of early cancer is difficult, this has led to a considerable number of mutilating operations. If the scientific basis for this opinion is examined, we find that it usually rests on one or two cases occurring in the experience of an individual. Generalizations from one guinea-pig have long been known to be dangerous. Those from one human being are equally dangerous. The problem, however, was attractive from the experimental point of view. The following experiment was therefore carried out in my laboratory: A large number of rats were inoculated with the Flexner-Jobling rat carcinoma, which metastasizes to the lungs in a given strain in about 20 per cent. of the animals. A biopsy was made on half of these tumors and the skin sewed back over the tumor. The cut surface was not cauterized. At the end of about ten days, the limit of time for a microscopic diagnosis, all tumors were excised to prevent further metastasis, both the controls and those which had been incised. The animals were then kept for a considerable period of time, in order that the metastases to the lungs might become of sufficient size to be easily recognizable. They were killed; the lungs studied, and no difference in frequency of metastasis was found in those animals in which the tumors had been subjected to a biopsy and those in which the tumors had not. Again, no generalization is wise, but under the conditions given it may be safely stated that in rats the performing of a biopsy does not increase the number of metastases to the lungs of the Flexner-Jobling rat carcinoma. Analogies also are dangerous, but the experiments suggest that possibly the dangers of a biopsy have been overestimated. In certain regions it is almost always done: in carcinoma of the cervix or the body of the uterus, carcinoma of the rectum, carcinoma of the skin, it has long been a practice to excise a piece for diagnosis, without obviously unpleasant consequences. Surgical opinion is now apparently slowly shifting, possibly somewhat influenced by this animal experiment, to the view that when a diagnosis can be made in no other way and the necessary operation is a mutilating one, a biopsy is justifiable.

MASSAGE DISTRIBUTION

Another interesting practical problem, to the solution of which transplantable tumors are well adapted, is the study of the conditions of metastasis following gentle massage of a tumor. We all see occasional examples of the results of mechanical treatment of tumors of the breast by some of the practitioners of physicotherapeutic methods, and, to say the least, they are astonishing in demonstrating the rapidity with which a carcinoma can be distributed throughout the body in a short period. But this demonstration on human beings is quite unnecessary, for if animal tumors are massaged, the number of metastases to the lungs will be greatly increased, in many instances doubled, by a few minutes of gentle massage on two or three successive days. If the tumor is then removed surgically to prevent further metastases and the animal kept a few months until the metastases have had a chance to develop, the lungs will be found filled with growths in types of tumors whose small cells make passage through the blood vessels easy. In very fibrous types of sarcoma, such increased metastasis was not observable, as might be expected.

An interesting by-product of this experiment, which shows the truth of the observations made long ago by M. B. Schmidt on necropsy material, that many cancer cell emboli do not actually develop into tumors, can be made by massaging the tumors of two animals, killing one immediately, and keeping the other for some months. In the first instance, the capillaries in the lungs will be found stuffed with cancer cells. In the animal that has been kept for a considerable time, only two or three metastases may develop. It is evident that the fibrin coating which these cancer cells early obtain, the constant motion of the fluid in the capillary lumen, plus the mechanical interference to the implantation of the cancer cell in the capillary wall due to respiratory movements, play an important part in determining the ultimate number of metastases that may appear. We all see human patients in whom large numbers of metastases may be found in some of the organs, and few or none in the lungs. The same phenomenon accounts for the infrequency of splenic metastases, the spleen being a pulsating organ. The constant motion offers a poor opportunity for the initial growth. If, however, the cancer tissue is inoculated into the spleen by means of a needle, ample tumor will be obtained. Evidently the old supposed biologic antagonism of the spleen to tumor growth was in reality physical.

RADIATION DOSAGE

Another problem to which transplanted tumors are admirably adapted was the determination of the biologic

conditions of the destruction of tumor cells by radiation and heat. It is possible to irradiate or heat tumors either in the animal or in vitro, and thus determine the lethal dose of any type of radiation or other destructive physical agent. If the tumor cells grow, they are evidently alive; if they do not grow, they are evidently dead. The first requisite is to determine whether the death-point of a given tumor is constant over a long time. This biologic constancy has now been definitely settled for a group of tumors, as there are growths being transplanted in the Crocker Laboratory for which the death-point has been determined year after year for the last ten years, the same tube of radium being used. It has been found to be quite constant.

In all experiments, large numbers of tumor particles have to be used in inoculation because no two particles, even though they measure only a millimeter in diameter, are homogeneous in regard to the age and growth conditions of the constituent cells. If they were homogeneous, all the cells would die with exactly the same dose; but as 100,000 human beings in the United States, all of exactly the same age, do not ultimately die at the same instant, so tumor particles when exposed to varying doses of physical agents die at irregular periods which, when plotted, resemble the human mortality curve. If this variability seems astonishing, it is nevertheless a general biologic condition; for, taking fifty specimens of the protozoon *Paramecium* descended from a single cell, all of the same age, and growing in the same culture medium, all will differ slightly in their death-point from radiation and their permeability to vital stains. Therefore, in determining the death-points of tumor cells, we use a large number of particles of tumor and expose them for a given period. If 75 per cent. of the particles, when inoculated, do not grow, we know that the lethal point is near. A slightly longer exposure is then given, and inoculations made. Finally a period will be reached when all the cells of the tumor particles are dead. It has been found that the quantity of roentgen rays required to kill all the cells of an average animal tumor, when scattered and secondary irradiation is eliminated, is approximately five human skin erythema doses. This seems high, and has been repeatedly challenged by those unfamiliar with the method, and also by those who are treating human tumors; but it is evident that there is but little difference between the animal tumor and that of man, for recent practical workers are making statements that it requires from two to four erythema doses to kill human tumors, and agree that some are even more resistant. It is probable, therefore, that these mouse tumors are comparable in their death-point to the tumors of human beings, and that most of the clinical cures which we obtain in man are not due to the destruction of all the tumor cells, but to the death, possibly, of a considerable portion, and the interference with the nutrition and growth of the remainder by the scar tissue that is produced.

Once the lethal point was determined, a vast series of problems became immediately soluble. Some of these have been worked out. It has been found, for instance, that no matter what the filtration or the wave-length of the roentgen ray or radium that kills the tumor cell, the same number of human skin erythema doses is necessary. The biologic sensitivity of the human skin and that of the animal tumor are therefore parallel. It has also been shown that, using an open ionization chamber to avoid all secondary irradiation, equal ionization doses of the same wave length kill in the same time; and, thirdly, that equal ionization doses of roentgen rays of different wave-lengths are equally effective. A by-product of these experiments showed that the ionization depth curves published by Dessauer are somewhat inaccurate biologically, and that the recent corrections of these curves correspond more closely to the facts.

It is generally believed that irradiation closes the lymphatics of the region exposed, and this has been brought forward as one of the chief arguments for preoperative irradiation. Experiments done in my own laboratory have shown that in animals the main lymph channels are not closed, at least within a period of two or three weeks, when exposed to doses of roentgen ray up to five human skin erythemas. One leg of an animal was irradiated, and the other reserved as a control; after a suitable period, the creature was killed and India ink injected into the foot-pad on both sides. No diminution in the lumen of the irradiated lymph channels could be observed.

It has been a matter of clinical observation that, after a tumor has been favorably influenced by irradiation and then recurs, the recurrence is less sensitive. Those whose opinions are entitled to respect have described this as an actual immunity to a physical agent, but it has seemed to me that the phenomenon is more easily explicable by assuming that, as the supporting connective tissues of the region have become largely devitalized by the effect of irradiation on the vessels, we no longer are able to observe the inhibition or destruction of the tumor cells through injury of the capillaries, but are witnessing instead the high natural resistance of such cells to direct irradiation. A number of years ago, when studying this question, I found that the lethal point of Tumor 180 to roentgen rays was not altered by exposing that neoplasm to a sublethal dose, implanting, and exposing the resulting tumors to a sublethal dose, and so on. The death point remained constant, despite the repeated exposures to roentgen ray. On the other hand, Russ, using another tumor, has recently observed effects which he interprets as showing increased resistance. The question therefore remains open for experimental decision.

The opinion has been long held by some roentgenologists that the direct effects of irradiation are supplemented by an active destructive action of the body tissues, either local or general. If this were so, then we might reasonably expect examples of spontaneous cure of primary cancer in human beings or animals. The extraordinary rarity of this phenomenon, only a few hundred fairly well authenticated instances being collectable from the cancer literature of the last twenty years, during which time millions of people have died of cancer, shows how improbable is any such active antagonism.

Another fact, well known to surgeons of experience, is that a few tumor cells may remain in a scar, for example, following excision of a cancerous breast, and a recurrence take place years after the operation. My own records and slides from many thousands of cases of cancer have shown a number of instances in which recurrences, after ten years or more, have been excised and the sections compared with the originals. The morphology of the neoplastic tissue is often exactly the same, proving that cells from the primary tumor had remained quiescent for years. If there are antagonistic forces available in the body, it is pertinent to inquire why they did not in all this time destroy the few remaining cancer cells. Evidently the burden of proof

rests on those who assume active destructive agencies in the body fluids or tissues. If they exist, why does a cancer ever start? Why are not the first malignant cells destroyed at their inception?

Again, cancer grows best in young, healthy animals and human beings and also in well vascularized tissue in which these hypothetic antagonistic forces might well be supposed to be most available. The extraordinary speed with which cancer grows in the breast of the pregnant human female is an illustration. Nor do grafts take well in old or sickly animals. Food supply is in all probability the decisive question here. Keyser irradiated tumors in animals, planted some grafts immediately, others after the lapse of a few days. The first took well, the latter did not. Hence he assumes that in the interval the tissues helped destroy the tumor. But another interpretation is more probable, which is, that during the elapsed period of seven to ten days, the full irradiation effect developed and the tumor cells were enfeebled. When transplanted, as most of the cells of even a healthy graft normally die, the enfeebled cells have but little chance to incite the necessary vascularity to enable them to proliferate, thus become established, and give rise to a tumor, which the freshly irradiated graft was able to do. Murphy has shown that irradiating an area does not prevent tumor implantation, a fact confirmed in my laboratory. Every radiotherapeutist of experience will also bear witness to the fact that a recurrent cancer of the breast will grow through areas of tissue which have been thoroughly irradiated.

That any general beneficent reactions may be induced by distant irradiation is easily disproved. In several patients receiving postoperative irradiation in my clinic, not the slightest effect was discernible on keratoses and basal cell growths at a short distance from the irradiated area.

That the blood or tissue lymphocytes have any inhibitory or destructive effect on cancer is negatived by the fact that persons suffering from chronic lymphatic leukemia with thousands of lymphocytes in the blood may have rapidly growing cancers, while the ability of tumors to grow freely in the lymph nodes shows that local lymphocytosis can play no effective inhibiting rôle.

CAUSATION

Finally, we will turn to another phase of our problem, and that is the production of tumors. It seems to be generally assumed that tar cancer was first obtained on animals. As a matter of fact, the English chimney-sweeps and the workers in briquet factories long ago furnished admirable examples of tar cancer, and Hanau in 1889 tried to produce cancer in animals by tar painting, but unfortunately selected species that are resistant to this procedure, that is, rats and dogs. He therefore got no tumors. But, chiefly through the patient industry of Yamagiwa and his co-workers, it has been found that painting with tar will produce cancer in mice, rabbits, and a few in rats and guinea-pigs. Fibiger's work has shown that a parasite will produce cancer in the stomach in susceptible rats, and the work of Bullock and Curtis in my own laboratory has shown on a large scale the possibility of the production of sarcoma of the liver by the irritation of cysts produced in that organ by infestation with *Taenia crassicola*, a cat tapeworm. Thus the production of cancer on a large scale is now a laboratory procedure, but the methods are too recent to permit of a thorough understanding of their nature, and decades may elapse before we obtain the full value of these important discoveries.

The important problem of the hereditary nature of the liability to cancer has been worked at for a long time, but the conditions are complex; the results, difficult to interpret. It can be safely said, however, that, owing to the work of Murray, Tyzzer, Slye, Bullock and Curtis, there has been demonstrated an hereditary liability to the appearance of cancer in mice and rats. The mechanism of such transmission is still under discussion, and the scope of its applicability to human beings is still far from solved. It may be well to remember in this connection the remark of one of the leading geneticists of this country, that we shall know whether cancer in man is hereditary according to the mendelian laws only when two races of human beings are bred together—one of which always has cancer, and the other, never, and the ratios of the appearance of cancer determined in the offspring. If this statement is correct, such a determination may not be expected in the immediate future.

My limit of time forbids further discussion of many other interesting phases of experimental tumor pathology. If the results appear to have been largely negative, it may be said in extenuation that it is still good practice, even in these times of changing values, to build a firm foundation before attempting to put a roof on a house. Too much of the research work on cancer has been of the roof building variety. But in the last twenty years, by the laboratory study of transplantable growths and the artificial production of tumors in animals, we have learned more about the nature of cancer and its causation than in the preceding thirty centuries which cover the recorded history of medicine.

POINT OF VIEW OF THE INTERNIST IN THE STUDY OF CANCER*

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The function of the family physician and internist in the study of cancer may be described as that of a liaison officer between the laity on the one hand and the pathologist, surgeon and radiologist on the other.

He is best able to obtain the patient's reaction to educational efforts.

On his skill, judgment and tact hinges the question as to when the patient receives diagnosis and treatment.

Much emphasis has been placed on the need of complete histories in the examination of patients. This requirement in diagnosis is most important in the detection of early cancer. The tendency among interns, senior students and internists is to give the patient little opportunity to express his own ideas of his case. Probably the majority of physicians obtain comprehensive histories by the Socratic method of question and answer. But how often is the patient given the opportunity to tell his past and present complaints in his own words? The supposition seems to be that the victim of disease is totally without adequate brains to assist in the development of complete anamnesis. Frequently, facts of essential importance are disclosed when the patient is given carte blanche to tell his own story. An almost forgotten history of slight gastric hemorrhage, diarrhea with bleeding from the rectum or a supposedly unim-

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portant bloody vaginal discharge, will direct the physician to malignancy of the stomach, colon or uterus.

The problem of diagnosis in cancer is perhaps attended by greatest difficulty when the stomach is involved. As 35 per cent. of all cancers are found within this viscus, it behooves us to improve our methods and concentrate attention on this phase of the subject. The internist must bear the burden, as the surgeon rarely sees the patient in the early period of his illness. Seventy-five per cent. of gastric cancers occur between the fortieth and fiftieth year. Therefore, we rarely consider the possibility of its occurrence in young people. A person between 18 and 30 years of age who suffers a sudden onset of symptoms with epigastric pain, a persistent slight rise of temperature, progressive anemia with no cachexia and rapid course should immediately be considered a possible example of malignant disease of the stomach in youth.

Current opinion has swung away from the idea that malignant gastric disease frequently arises on a previously ulcerated process. A patient having a long history of ulcer with remissions may suddenly reveal signs of loss of weight, appetite and strength. Such persons all too often have a carcinoma of the stomach. Possibly the explanation may be that a slow development of malignancy has been present from the onset of the first symptoms. Every patient more than 35 years of age who presents himself with a history of indigestion, slight malaise and declining appetite should immediately have a most thorough examination to exclude the possibility of carcinoma. At least 10 per cent. of those having such symptoms have carcinoma. Roentgenology, as applied to the gastro-intestinal tract, has supplied such phenomenal aid in diagnosis that gastric analysis has largely been disregarded. A proper evaluation of the latter procedure has an important place in diagnostic methods. The Ewald test breakfast gives more evidence in this condition than the newer distilled water meal with fractional analysis. Recovery of the chyme from the fasting stomach must not be neglected, as fragments of food from previous meals frequently suggest the onset of stasis.

A secondary anemia usually occurs as a relatively late symptom; hence, its absence should not be considered. Repeated testing of stools for occult blood is not to be overlooked. The roentgenologic examination should begin with an observation of the barium meal as it passes to the stomach. Delayed entrance into the stomach is often an earlier sign of cancer of the cardiac portion than dysphagia. Fluoroscopic observations during the period of gastric digestion should be frequent and accompanied by palpation. Plates for minute study should be taken when suspicious shadows are observed. Pictures without fluoroscopy do not give sufficient data for alimentary diagnosis. Unfortunately many roentgenologists are not convinced of this fact. Positive findings are misleading at times. In two recent cases, not only were there filling defects of a persistent character, but gastric analysis showed blood and signs of stasis. Both patients had cholelithiasis with firm adhesive bands from the stomach to the gallbladder. No cancer was present.

A presumptive diagnosis of cancer of the stomach is made when a comprehensive history and physical and laboratory examinations seem to exclude the presence of other diseases as a cause of loss of weight, appetite and strength in a patient past 40 years of age previously in good health. Immediate exploratory laparotomy should be urged. This advice is to be given even though the roentgenologic report is negative. When cancer is not present at operation, other surgical diseases of the abdomen may be found Exploration for gastric cancer has disclosed atypical cholelithiasis in several of my cases. An occasional unnecessary exploration must be performed if we hope to diagnose carcinoma ventriculi in its operable stage.

The surgeon's attitude toward gastric surgery has changed during the last ten years from a degree of temerity to one of extreme timidity. He is too afraid of making an incorrect diagnosis, too afraid of adverse criticism. When a surgeon acquires a good private practice, he is apt to guard his reputation rather than to attempt surgery in difficult cases. The internist's point of view is that his surgical confrère should not refuse to explore an abdomen when there is a justifiable belief that visceral cancer may exist. Furthermore, the medical attendant suffers a severe shock when the palliative treatment of a gastric cancer is substituted for a radical operation. When a frank cancer in the operable zone of the stomach is allowed to remain, an injustice is done the patient. The internist believes that a partial gastrectomy should be made in place of merely a gastro-enterostomy. Removal of such growths prolongs lives for years in many instances. A radical operation should be done even though glandular metastases are present. Five such patients in my own experience have lived more than five years, while one [1] is alive nineteen and one-half years after an extensive partial gastrectomy. Dietary regulations after gastro-enterostomy for ulcer or cancer should be rigidly enforced by the internist over a period of several years. Excessive use of condiments and coffee should be forbidden, and a minimum of protein food advised. Six small meals a day should be taken for at least six months following operation. A free use of vegetables is suggested, but only after having been put through a colander. Raw fruits, such as apples, oranges, grapefruit and uncooked tomatoes, cucumbers and cabbage, should be forbidden. All meats should be finely divided before swallowing.

PROPHYLAXIS

As there is no proved etiology of gastric malignancy, our efforts should be directed against the apparent factors in its causation.

DIETETIC SUGGESTIONS

The inhabitants of certain localities, notably the Virgin Islands and Java, are singularly free from cancer. In 5,270 hospital cases in St. Croix,[2] fourteen showed cancer.

This freedom from malignancy is ascribed in part to the simple diet, especially lacking in highly seasoned protein food. An analysis of 672 cases of cancer occurring in Egypt during the last three years reveals eight cases of cancer of stomach and only six cases of gastric ulcer. Doubtless the simple habits and vegetarian diet of these people offer some explanation. Education with the idea of inducing Americans to eat less protein food and to precede deglutition by at least some mastication may check the rapid increase in alimentary carcinoma. Dietary precautions have some influence in the prevention of cancer. Let us not, however, conclude that some dietetic fad may accomplish the cure of carcinoma.

1. Dunham, J. D.: Carcinoma of the Stomach, J. A. M. A. **80**: 550 (Feb. 24) 1923.
2. Van Gaasbeck, C. B.: U. S. Nav. M. Bull. **20**: 31 (Jan.) 1924.
3. Dolbey, R. V., and Moore, A. A.: Lancet **50**: 581-632 (March 22) 1924.

Such groundless faith has lost to many a deluded patient the opportune moment for operation.

Early removal of foci that may develop cancer must be more generally observed. The elimination of oral sepsis and the removal of diseased tonsils is imperative. Erosions of the stomach doubtless are a starting point for ulcer and cancer. Therefore, tonsils, with their streptococci, should be eradicated in early life. Sane dietary habits must also be stressed. Prevention and early removal of existing uterine cancer will be more frequent if every woman past 30 years of age who presents herself for any sort of ailment is given a careful pelvic examination. Nelson [4] observes that uterine cancer has increased 2.5 per cent. yearly. Less than 50 per cent. of these patients reached the Mayo Clinic in an operable stage. A bloody discharge or watery leukorrhea are the signs against which women should be warned.

From Jan. 1 to May 3, 1924, seventy articles, including reviews, on cancer were published in one journal.[5] Is it not possible that greater headway against the encroachments of this disease would be accomplished if well considered educational contributions were made to lay journals? In a survey to explain the delay in the cases of 539 cancer patients not receiving early treatment, Simmons and Daland [6] state that 14 per cent. of all patients and 15 per cent. of patients with carcinoma of the breast are known to have received poor advice from the first physician consulted. Their figures indicate that the educational campaign for the last few years has had more effect on the laity than on the general practitioner. Senior medical students must have more definite instruction about prophylaxis in, and the early recognition of cancer. Hysteria in education must be avoided with the surgeon as well as the general public. An example was seen recently in the removal of both breasts in a patient who had a small benign tumor in one.

As a final thought, allow me to suggest a part of the educational propaganda to laymen. A thorough annual examination for cancer should be made in every person, beginning with his fortieth year.

Perhaps this may appear utopian, but one must remember that propaganda through the press has practically no limit in its possibilities.

327 East State Street.

4. Nelson: Minnesota Med. **6**: 110, 1913.
5. THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.
6. Simmons, C. C., and Daland, E. M.: Boston M. & S. J. **190**: 1-44 (Jan. 3) 1924.

Specialization and Its Dangers.—The historic division of function between physician and surgeon has given place to countless subdivisions among both branches of the profession. The portions of the human frame and its various organs have been allotted to, or appropriated by, the specialist, whose business it is to be especially conversant with some small territory, and who often boasts of his ignorance of what is outside his boundaries. The eye, the nose, the ear, the throat, each has its special guardian. Doubtless you have heard of specialists in the vermiform appendix. Then, in addition there are what I may call specialists in investigation, pathologists, bacteriologists, biochemists and biophysicists, including, of course, investigators into such subjects as roentgen ray and electrical treatment. This extension of specialization is, I think, to a great extent inevitable, and up to a point it is, I think, a welcome and desirable process. It is only by means of specialization that it is possible to make those additions to our knowledge which we call progress, and it is the specialist who can extend the frontiers of our knowledge. But the process has its dangers.—Waring, H. J.: The Medical Man of the Future, *Lancet* **2**:690 (Oct. 4) 1924.

THE SURGICAL TREATMENT OF CANCER *

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The surgical treatment of cancer begins with the treatment of precancerous conditions. Whether we believe in specifying these lesions as precancerous, or whether we feel that they are cancerous from the beginning, nevertheless, there is a period in which they do not present the usual cellular picture of cancer, and in which it is impossible to determine definitely whether they ever will. The eradication of the disease in the early stages brings about a cure of the condition.

The so-called premalignant lesions are not all of the same type, and usually differ in different areas. One of the most striking examples of a benign disease which later becomes malignant is that of leukoplakia, which occurs so frequently on the mucous membrane of the buccal cavity. In many instances, leukoplakia is syphilitic in origin, but in others, it occurs independent of any systemic infection. It often exists for a considerable period as a small white spot with no signs of change; then, apparently without added irritation or other cause, it breaks open, the epithelium proliferates, and in a short time it appears as a typical epithelioma. This may take place after the leukoplakia has been in existence for many years. Treatment undertaken before this change occurs is the same as that for a simple lesion, which will not recur after it has been removed, while, if treatment is not instituted until after the change has taken place, the growth may possibly recur locally, or extend into the cervical lymphatics.

The question of whether a benign ulcer of the stomach ever becomes malignant has been widely discussed. So far as I know, this actual change has never been seen, but the clinical history in some of the cases and the condition found at operation certainly suggest very strongly that an ulcer may become malignant. It is not unusual to operate on a patient with cancer of the stomach whose history suggests ulcer. Whether the lesion was slowly becoming malignant for twenty years, or whether it was present as a benign ulcer during the greater part of this time and then became malignant, may be rather difficult to determine, but the length of the history certainly suggests benign ulcer. Many of the cancers of the stomach that are excised have all the physical appearances of benign ulcer. MacCarty and Sistrunk [1] have endeavored to distinguish between benign and malignant ulcers of the stomach by the size of the ulcer. My experience in operating on ulcers of the stomach has convinced me that it is necessary always to have in mind the possibility that the ulcer may be malignant. I have excised certain ulcers of the stomach, believed to be malignant, but which proved to be benign. I have also been obliged to perform simple gastroenterostomy in other cases believed to be benign ulcers of the stomach, and the patients have come back after short intervals with inoperable, hopeless, gastric malignancy. Because of this, I believe that all ulcers of the stomach should be treated surgically, removing them as thoroughly as possible; otherwise, we shall all continue to treat certain cases as simple ulcers, when they are in fact malignant.

* Read before the Section on Pathology and Physiology at the Seventy-Fifth Annual Session of the American Medical Association, Chicago, June, 1924.

1. MacCarty, W. C., and Sistrunk, W. E.: Benign and Malignant Ovarian Cysts: A Report of One Thousand Specimens, Surg., Gynec. & Obst. **17**: 41-50, 1913.

The problem in regard to the association of chronic cystic mastitis and cancer of the breast has received a great deal of attention, and, so far as I know, has not been definitely settled. I think most of us feel that cancer originates as a solitary neoplasm, so that if chronic mastitis is a factor in the etiologic development of cancer of the breast, it must focus itself at some one point. Chronic cystic mastitis, abnormal involution, secondary hyperplasia, we ordinarily understand to be diffuse conditions in the breast, and yet they may be results of the inflammation and irritation that the cancer develops. I do not believe that chronic cystic mastitis should always be treated surgically, but I do believe that every solitary lump in the breast, or any unusual nodule in association with a diffuse mastitis, should be excised immediately for microscopic study.

Cancer of the cervix may develop to a surprising extent before the patient comes for treatment. The first symptom is unusual bleeding or foul discharge, which may also occur with an ulcerated eroded cervix. The cervix of women who have had children is often eroded, and such erosion is usually readily distinguished from malignancy. Cancer of the cervix sometimes occurs in women who have not had children, but in most instances the cervix has been lacerated and eroded. The same question arises in these cases of just how much the erosion has to do with the origin of the cancer. In any event, it would seem that treating such erosions early might reduce the number of cancers of the cervix.

Epithelioma often develops in the ulcerated surface of the skin following a burn. It may also develop in ulcers, such as are seen on the extremities in association with varicose veins. It is true that ulcers may exist in the skin for a long time without showing signs of malignant change, but it is also true that epitheliomas do sometimes develop in these intractable ulcers, and that under no circumstances should they be allowed to progress without every effort being made to produce healing.

Polypi, especially in the colon, and diverticulitis, common in the sigmoid, are other examples of benign lesions which seem to have a tendency to become malignant or to act as factors in the development of malignancy. General diffuse polypi of the colon apparently do not undergo malignant change as often as single large polypi; therefore, whenever they are discovered, they should be removed. In a recent study of the association of diverticulitis and cancer of the sigmoid in eighteen cases, I was led to believe that diverticulitis did not have much to do with the causation of sigmoid cancer. The problem in these cases is to determine whether the lesion is diverticulitis or cancer, or diverticulitis and cancer, and our present knowledge of this condition leads me to believe that it may be necessary to make the distinction by microscopic study.

The surgical treatment of cancer is based on the assumption that cancer originates in a solitary focus, from which it is distributed. This assumption is unquestionably correct in most instances, but there are occasional cases in which lesions seem to occur in several places almost simultaneously. It is not always possible to recognize a cancer in the early stages, but it is probable that if all cancers could be removed when they are still confined to the tissue in which they originated, most of them could be cured. In many cases there are undoubtedly undemonstrable extensions at the time of operation, but it is doubtful whether any of these occurred until after the primary tumors had been in existence for some time. Surgeons have made a strong plea for early operation in the treatment of malignancy, and a great deal has been accomplished by placing the importance of this step before the public. Through various propaganda and teachings, the people now know that any sore that does not heal should be regarded with suspicion, or that any lump or tumor may be malignant. They also know that passing blood from the bowel or bladder may mean that it is coming from an ulcerated surface in the intestine or urinary tract, and that such ulceration may be malignant. Most women are aware of the fact that any unusual bleeding or foul discharge from the uterus, especially after the menopause has been established, probably means the presence of malignancy in the uterus. As a result of this teaching, patients are consulting their physicians much earlier than formerly, and the prognosis is much better. One of our most discouraging problems is the attitude of some family physicians. Patients with definite malignant growths are coming for surgical treatment after having been under observation by their physicians for a year or more.

I have under observation at the present time two patients who illustrate this point. One patient, a dentist, had hematuria one year before, and he immediately went to his local physician, who, on cystoscopy, found a small tumor of the bladder. According to the patient's history, he was put on bladder lavage. It may be that the examiner was ignorant of the real condition, but any one who is capable of making a cystoscopic examination and discovering tumor knows that almost all tumors of the bladder are malignant, so that a mistaken diagnosis is not excusable. It is more than likely that, in this physician's opinion, the surgical treatment of such tumors has not been satisfactory, and therefore he did not advise operation. When the patient came to the clinic, extensive malignancy was found, but it was in the form of a single tumor that could still be removed, and this was done by an extensive resection of the bladder, involving the transplantation of one ureter and the excision of a part of the mucous membrane of the urethra. A considerable part of the wall of the bladder on one side and the entire thickness of the bladder with the prevesical fat were removed. Although the dissection was well away from the malignancy, and, so far as I know, all the malignant tissue was removed, yet at this stage of the disease the likelihood of recurrence was high. For this reason, the patient's home physician may eventually be able to cite this as a case in which surgery was not satisfactory. Unfortunately, by this time the patient may have forgotten that his family physician had been consulted at a time when removal of the tumor would have been a much simpler operation, and at a time when the malignancy might not have been disseminated.

Another illustration of the attitude of certain physicians with regard to the excision of such tumors is afforded by a middle-aged woman, who, because of bleeding from the bowel, had consulted her home physician two and one-half years before coming to the clinic. A diagnosis of hemorrhoids was made, and operation performed. It is possible that the condition was not malignant at the time of this operation; but, in view of the fact that bleeding and other symptoms continued afterward, it is quite probable that cancer of the rectum existed at this time. An astonishing number of patients with cancer of the rectum are treated for hemorrhoids without a thorough examination of the rectum having been made. In this particular case, the tumor of the rectum was discovered shortly after the operation for

hemorrhoids. More than two years after this, the condition was still operable, and after performing a colostomy, the rectum, with the growth, was removed in a fairly satisfactory manner. The tumor certainly had progressed considerably in the two years, and while the radical operation offers some hope of cure, a much better result could have been offered two years ago.

Good results will not always be obtained following the surgical treatment of carcinoma, even if the operation is performed at an early period. Until recently, the surgeon has had to be very guarded in his prognosis in all cases of carcinoma. Unusual experiences have occurred in the practice of those who have treated a great many patients. On the one hand, apparently spontaneous cures have been observed in cases of supposed inoperable malignancy, the diagnosis in some of these having been confirmed by microscopic study of pieces of the tumor. On the other hand, early and rapid recurrence has been observed after removal of what was supposed to be a curable case of carcinoma. The operative excision in these cases had been carried to a point in the apparently healthy tissue. It was this problem of uncertainty that led Broders,[2] in 1919, to study certain cases of epithelioma in the Mayo Clinic, in an attempt to determine, by the microscopic picture of the tumor, the virulence and degree of malignancy, and the results to be expected from treatment by removal of the growth. I believe that this is one of the most important investigations that has been made of cancer up to the present time. While it does not have a distinct bearing on the etiology of malignancy, it is of very practical value, and will enable the surgeon to make a fairly accurate prognosis in these cases. It will also enable him to avoid operating in certain cases that are hopelessly malignant in the beginning. Surgeons have been criticized, and rightly, for operating on patients who should not have been operated on. Operation has been stimulated in such cases by the fact that in some of the cases that appeared the least favorable, good results have been obtained. By studying these cases from the standpoint of Broders' gradation of malignancy, we can now decide when to operate and when not to operate.

Broders asserts that, in grading malignancy, cell differentiation plays the important part: that is, if about three fourths of the epithelium is differentiated, and one fourth undifferentiated, the tumor is of Grade 1; if the differentiated and undifferentiated epithelium is about equal, it is Grade 2; if the undifferentiated epithelium forms about three fourths, and the differentiated about one fourth, it is Grade 3, and if there is no tendency to cell differentiation, it is Grade 4. He says that the number of mitotic figures and the number of cells with large, deeply staining nucleoli play an important part in the grading. His first investigation was based on a study of 2,000 epitheliomas. It is seen that the basis of the index depends on the fact that the more a neoplastic cell tends to differentiate or approach in structure a normal cell, the lower is the degree of malignancy; and the more malignant the tumor, the more undifferentiated or embryonic its cells. Broders' study of these cases during the last five years has impressed me with the fact that he is able to estimate the end-results with a fair degree of accuracy.

Two recent cases illustrate this point. One was an epithelioma of the vocal cord in the larynx. The extent of the malignancy when the patient was first seen, more than three years ago, was such that a thyrotomy and excision of the cord was indicated. The growth was too extensive to be removed by intralaryngeal operation, and yet was not extensive enough to warrant a total laryngectomy. The growth had been diagnosed by Broders as Grade 3 malignancy, which was unusual for an epithelioma in this situation. In my experience, epitheliomas originating in the vocal cord, at any rate so long as they are confined to the cord and surrounding mucous membrane, are not very highly malignant. The patient remained well for almost three years after complete excision of the epithelioma with the cord. He then came back with a local recurrence, which involved the mucous membrane on the same side of the larynx. I have operated in many cases of this kind, but have had no other experience with a local recurrence, and am inclined to believe that this tumor was of a higher grade of malignancy than usually occurs in this situation, as Broders' classification indicates. In the other case, bearing on Broders' gradation of malignancy, a tumor of the bladder, from a specimen removed at the time of cystoscopic examination, was graded 3. Aside from the degree of malignancy, it was a good case in which to operate, as the tumor was in the dome of the bladder, and could be excised with an adequate amount of surrounding tissue. This operation was done about a year ago. I am confident that the resection was carried well beyond any neoplastic extensions. After one year the man returned because of recurrence of slight hematuria. Cystoscopic examination revealed a local recurrent growth in the wall of the bladder. Many, much more extensive cancers of the bladder have been excised in the Mayo Clinic, and the patients have remained well; but with our present knowledge concerning gradation of malignancy, early recurrence was to be expected in this case.

The importance of Broders' study was emphasized by Cole [3] at a lecture delivered before the Postgraduate Hospital in London in 1920, and a number of others [4] writing on epithelioma accept Broders' gradation of malignancy as a law of prognosis. In 1923, Martzloff [5] of Johns Hopkins University made a study of cell differentiation as an index of malignancy, and he said that the histomorphology of the predominant type of cells in epidermoid cancer of the cervix is important, in that it indicates the relative malignancy of a given tumor. In his study, the spindle-cell type of cancer proved to be the least malignant; the transitional cell type was next in order of increasing malignancy, and the fat spindle cell type of cancer has proved to be most malignant of all.

Because of the uncertainty of a prognosis in cases of cancer, as estimated by all the other methods, I am sure that the surgeon will be very much gratified to have this method at hand.

It is estimated that more than 90,000 persons die in the United States every year from cancer, and that cancer is killing one out of every ten persons over 40 years of age. While we are obliged to admit that the greatest development in the treatment of cancer will come when the etiology is recognized, nevertheless, it is certain that many such deaths are preventable. That

2. Broders, A. C.: Squamous-Cell Epithelioma of the Lip: A Study of Five Hundred and Thirty-Seven Cases, J. A. M. A. **74**: 656-664 (March 6) 1920; Squamous-Cell Epithelioma of the Skin, Ann. Surg. **73**: 141-160 (Feb.) 1921; Epithelioma of the Genito-Urinary Organs, ibid **75**: 574-603 (May) 1922.

3. Cole, P. P.: Surgical Treatment of Malignant Disease of Lip and Jaw, Lancet **2**: 845-848 (Oct. 23) 1920.

4. Meleney, F. L.: Epithelioma, China M. J. **36**: 93-102 (March) 1922.

5. Martzloff, K. H.: Carcinoma of Cervix Uteri: Pathological and Clinical Study with Particular Reference to Relative Malignancy of Neoplastic Process as Indicated by Predominant Type of Cancer Cell, Bull. Johns Hopkins Hosp. **34**: 141-149 (May), 184-195 (June) 1923.

cancer is almost unknown in the tropical countries and among uncivilized people has been recognized for a long time. From the increased number of cancer patients that are being seen in this country, we are all agreed that it must be on the increase.

Cancer occurring in different areas of the body seems to have special characteristics. Cancer occurs frequently about the head, face and neck, developing from the mucous membrane of the buccal cavity or from the epithelium of the face. Three and seven-tenths per cent. of the deaths from cancer occur in those in whom the cancer originated in this region. The characteristic thing about cancers in this locality is that they almost always remain local, in spite of the very rich lymphatic drainage of the tissues of the head, face and neck, and the ease with which cells might be distributed through the venous circulation or lymph stream, and it is very unusual for an epithelioma in this region to metastasize to any of the tissues below the clavicle. It has been my experience that if a wide excision of the epitheliomas in these regions is made at a fairly early stage in their development, a high percentage of cures is possible. Epitheliomas of the larynx respond well to surgical treatment, but carcinomas of the thyroid under ordinary circumstances are all inoperable at the time of examination. Cancer originating in the thyroid extends early to surrounding tissues, and metastasizes quickly to bone and other structures. Many are of a high grade of malignancy, and the result of surgical treatment has not, as a rule, been satisfactory.

The largest number of estimated deaths from cancer, 37.7 per cent., have occurred in cases in which the cancer involved the stomach or liver. Cancer of the liver is hopeless from a surgical standpoint. Good results may be obtained in cases of cancer of the stomach if operation is performed at a time when the malignancy is confined to a definite area of the stomach, and the degree of the malignancy is not high. At the present time, the ultimate results of operation for cancer of the stomach have been about the same as those obtained from operations for cancer of the breast and cancer originating in the intestine. It seems to me that we may hope for better results in our gastric cases by making it a practice to excise thoroughly all gastric ulcers. One of the most striking factors in relation to cancer of the gastro-intestinal tract is the fact that the small intestine is almost entirely free from a typical cancerous condition.

During an interval in which 1,800 cancers of the colon and nearly 1,700 cancers of the stomach were observed in the Mayo Clinic, there were only twenty-four cases of cancer of the small intestine, and the origin of the trouble in many of these was doubtful. The results obtained from operations for cancer of the colon have carried a rather higher immediate mortality than in other situations, but the ultimate results in a definite percentage of cases have been very good. Progress in the treatment in malignancies of the colon will come, I believe, through earlier recognition by means of accurate roentgen-ray examinations. It is sometimes surprising to see to what an extent cancer of the colon can develop without causing local trouble, and how, for instance, protracted anemia may be the result of a cancer of the right colon, without producing any local evidence of its existence.

In nearly 15 per cent. of persons who die from cancer, the original trouble is in the female genital organs. The condition of some of these patients undoubtedly is hopeless from the beginning, while others whose treatment is begun early may be cured. Cancer of the body of the uterus has always offered a favorable prognosis from radical operation, while cancer of the cervix has not been so favorable. Radium seems almost a specific in the treatment of cancer of the cervix. In view of the fact that it has not been used for a great length of time, it is not possible to determine whether the ultimate results will be as good as the immediate.

Cancer of the breast is estimated to be the cause of death in a little more than 9 per cent. of all deaths from cancer. Cancer of the breast is usually recognized early, and is in an area that can be excised radically with the adjoining lymphatics. The results of surgical treatment of cancer of the breast, however, have been no better than those of cancer in other regions. As a group, I believe that cancers of the breast have a higher degree of malignancy than cancers of many other regions. Radical surgery has been undertaken for cancer of the breast for many years, and the development in the treatment of this condition is apparently not along the technical lines. Most of these patients are coming for treatment earlier than formerly, and as a result, there should be a higher percentage of cures. There will still, however, be cases in which the prognosis is apparently hopeless, almost from the start.

The importance of the gradation of malignancy is well illustrated by the results obtained in operating on cancers of the genito-urinary tract. Patients with cancers originating in the kidney, bladder and prostate, if the cancer is not too highly malignant, do very well after complete surgical removal of the cancer. A careful grading of the tumors of the kidney shows that the prognosis can be estimated quite accurately by a study of the cell differentiation.

CONCLUSIONS

1. The surgical treatment of cancer is based on the fact that cancer originates as a solitary neoplasm, and if operation is performed while the disease is still confined to a single area, the results will be very satisfactory.

2. Certain cases of cancer seem to be hopeless from the beginning, and surgery, or any other method of treatment, apparently does not influence the progress of the neoplasm.

3. In certain cases in which the condition seems to be very extensive and to involve surrounding structures, there may still be a chance of cure by complete eradication.

4. The most important development in our knowledge of cancer in recent years has been Broders' gradation of the malignancy according to the cell differentiation, which permits a fairly accurate prognosis, and prevents operating on a certain group of patients for whom treatment is of no avail.

5. It is not my purpose to make great claims for the surgical treatment of cancer, yet I do contend that surgery has done more for persons suffering from this disease than all other methods of treatment combined. Although the results are somewhat discouraging, I believe that every patient who has a malignant growth should be given the opportunity of whatever treatment offers the best results. It is not right to consider cases hopeless without first making a very careful estimate of the grade of the malignancy and of all other factors.

6. Operations on patients whose condition can be shown to be hopeless are a discredit to surgery. Even palliative operations, if the growth could not be removed under ordinary circumstances, should not be undertaken.

DIABETIC DIETS IN GRAMS PER KILOGRAM OF BODY WEIGHT

CALCULATED FROM REPORTS ON ONE HUNDRED AND FORTY CHILDREN TREATED WITH INSULIN *

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Comparisons of the practice of different students of diabetes may perhaps, in the future, be furthered by figures on the diets furnished to a given group of patients; especially after eliminating the extremely variable factor of body weight, which may be done by prorating the calories, and likewise the twenty-four hour amount of carbohydrate, protein and fat in grams per kilogram.[1] In order to invite attention to this possibly useful advance in precision, I submit a tabulation of children treated with insulin. Such a table must be tentative, owing to reservations on several factors, more or less indeterminable, in some of the published reports.

The factors in mind are all those which may have interfered with unlimited insulin dosage, such as its rarity in the early days, a patient's poverty, objection to repeated pricks, or possibly in the emaciated patient with extremely low tolerance suffering from too bulky subcutaneous injections of insulin at the current concentration. When these factors can be excluded, as is feasible today in most of those patients who stay under observation long enough to be studied and reported, the unlimited insulin supply surely permits each observer to apply with reasonable regularity his favorite diet distribution. Variations necessary in individual children will fade in the average for the series, and then that method of diet distribution may be more easily judged by grams per kilogram calculations than by present descriptions.

Diets Furnished Diabetic Patients of First and Second Decades, Treated with Insulin

Observers Beginning with Lowest Fat Ratio	No. of Cases	Insulin Units 24 Hrs.	Diet in Grams per Kilogram of Body Weight C/k	P/k	F/k	Cal./k	F:C
Holt and Fales' normals	..	0	9.4	2.8	2.8	74	0.3
Joslin	60	11	2.7	1.9	3.4	49	1.3
Geyelin	8	32	3.3	3.1	5.1	73	1.5
Mosenthal	4	16	3.1	2.2	4.9	67	1.6
Allen and Sherrill	35	19	2.7	2.7	4.8	64	1.8
Sansum	13	41	1.9	1.6	4.1	51	2.2
Average of foregoing five clinics (120 cases)	..	19	2.7	2.2	4.1	56	1.5
Average of eleven other clinics	20	25	2.0	1.7	4.4	54	2.2
Grand average (of 140 cases)	..	20	2.6	2.1	4.1	55	1.6

Evident conclusions are that the practice in this clinic has been to use less protein and fewer calories than in other clinics, and less fat in proportion to carbohydrate (i. e., low F:C; or F:G, when available glucose = grams C plus P/2). If one desires, and considers legitimate, a consolidation of the foregoing expert opinions, one finds by averages from the 140 diabetic children a diet of 55 calories per kilogram of body weight, a carbohydrate of 2.6 and protein allowance of about 2.1 gm. per kilogram, and fat of 4.1 gm. per kilogram, with insulin, 20 units a day.

* From the Clinic of Dr. E. P. Joslin at the New England Deaconess Hospital.

1. Gray, Horace: New York State J. Med. **24**: 543 April 11) 1924.

CHOLECYSTOGRAPHY

AN EXPERIMENTAL AND CLINICAL STUDY *

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In previous publications,[1] we have established the fact that cholecystography is possible in the living human subject. By this we mean making the gallbladder opaque to the roentgen ray by the injection of certain substances into the blood stream which are largely excreted into the bile. We have also called attention to the criteria that determine a normal or pathologic gallbladder when examined in this way. In our earlier investigations, we used for study salts of tetraiodophenolphthalein and tetrabromphenolphthalein. Both of these substances gave excellent shadows. Since that time we have examined twenty-eight other substances, six of which have also made the gallbladder visible after intravenous injection.

Theoretically, any substance containing a metal or a bromin or iodin atom would make the gallbladder visible if it were in sufficient concentration in the gallbladder. It is therefore apparent that a vast number of possibilities exist of finding chemical substances which experimentally will permit a visualization of the gallbladder roentgenologically. To be of service clinically, however, it is obvious that any substance used must have a relatively low toxicity and must not stain the tissues. Ideally also it would be desirable to have a substance that could be given by mouth. Up to the present time our evidence, both experimental and clinical, seems to indicate that the sodium salt of tetrabromphenolphthalein meets the requirements more satisfactorily than any other substance. Even with this substance, however, there are minor toxic effects in a small proportion of cases, as will be shown below. It is hoped that eventually some compound will be found which will be completely nontoxic as well as satisfactory from the standpoint of cholecystography.

Our early work with tetraiodophenolphthalein was disappointing because it was expected, on theoretical grounds, that owing to its high iodin content this substance would perhaps yield excellent shadows and at the same time be sufficiently nontoxic to prove satisfactory. This early work, however, disclosed too high a toxicity to make it seem justifiable to use this compound clinically. We have obtained a more highly purified product and have found that by using smaller doses (3 gm.) of the sodium salt of tetraiodophenolphthalein it is possible to get shadows with practically no toxic effects. Further work with this substance is now in progress. It should be stated, however, that in accord with well known pharmacologic principles, the tetraiodophenolphthalein should be expected to be more toxic than the tetrabrom compound because of the greater dissociability of organic iodin compounds than organic bromin compounds. Greater care would also probably have to be taken in its manufacture and

* This work has been aided by a grant from Mr. Edward Mallinckrodt, Jr.

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1. Graham, E. A., and Cole, W. H.: Roentgenologic Examination of the Gallbladder: Preliminary Report of a New Method Utilizing the Intravenous Injection of Tetrabromphenolphthalein, J. A. M. A. **82**: 613 (Feb. 23) 1924. Graham, E. A.; Cole, W. H., and Copher, G. H.: Visualization of the Gallbladder by the Sodium Salt of Tetrabromphenolphthalein, ibid. **82**: 1777 (May 31) 1924; Roentgenological Visualization of the Gallbladder by the Intravenous Injection of Tetrabromphenolphthalein, Ann. Surg. **80**: 473 (Sept.) 1924.

in keeping it, for the same reasons. It should be recalled also that this substance was formerly used because of its powerful antiseptic qualities. At the present time, therefore, we are not inclined to advocate the substitution of tetraiodophenolphthalein for tetrabromphenolphthalein in clinical use, although it is possible that further experience will make this substitution seem desirable. A comparative series of patients injected with these substances is now in progress. It should be stated that for various reasons the roentgen-ray shadows obtained in experimental animals with any of the substances tried are less consistent than in the human subject.

Tetrabromphenolphthalein sodium is a blue crystalline compound whose p_H in solution ranges between 8.0 and 10.0. It has a molecular weight of 678 and is almost 50 per cent. bromin by weight. The salt is so soluble in water that a 40 to 50 per cent. solution can be obtained. It should be preserved in brown bottles. Exposure to light causes it to fade and increases its toxicity. Exposure to air has the same effect. Tetrabromphenolphthalein has a comparatively low toxicity. As high as 0.1 gm. per kilogram has been given to a human subject. For a time, 5.5 gm. (83 grains) was given intravenously to a person weighing 125 pounds (57 kg.) or more. At present we are using 5 gm. for a dose. Experimental animals may be given 0.25 gm. per kilogram of body weight. Observations of the blood clotting time of patients and animals after injection of the sodium salt have not disclosed any changes. The color of the blood serum after injection of the dye is unchanged. This is due to the fact that its staining property is very weak. Some intravenous injections have been followed by slight hemolysis in vivo.

By analogy with the statement of Abel and Rowntree concerning the excretion of phenoltetrachlorphthalein, it seems reasonable to suppose that nearly all of the tetrabromphenolphthalein is excreted in the bile. The color of the bile after intravenous injection of tetrabromphenolphthalein is unchanged. Injection of the drug is followed by a perceptibly increased flow of bile. It is not a biliary disinfectant, as evidenced by its effect on various cultures of bacteria. No pathologic changes of note have been found in the liver after injection of the dye. At present we know of no satisfactory method of testing qualitatively or quantitatively for tetrabromphenolphthalein in the blood or bile.

Fairly rapid intravenous injection of the sodium salt of tetrabromphenolphthalein into the dog causes a sharp transient fall in blood pressure of about 15 mm. of mercury. A prolonged injection over a period of ten minutes or longer is not followed by a fall of blood pressure. We have never seen a rise in blood pressure to a point above normal after single or multiple injections, either experimentally or clinically. A fall in blood pressure similar to that obtained after injection of the sodium salt of tetrabromphenolphthalein can be obtained by the intravenous administration of phenolphthalein. Clinical cases have had careful blood pressure readings made for a considerable time after injection of the sodium salt, and in the majority of cases there have been no changes in blood pressure. In a few there has been a sharp fall of blood pressure. The marked falls in blood pressure were accompanied by systemic reactions.

Sodium tetrabromphenolphthalein is nonirritating when applied locally. An aqueous solution will produce necrosis when injected into the subcutaneous or muscular tissue. Suspensions of the free acid and of the sodium salt in olive oil and an emulsion of a solution of the sodium salt in olive oil have been injected subcutaneously and intramuscularly into experimental animals. The gallbladders of rabbits have been visualized by roentgen ray in several instances with each of the preceding combinations. The shadows are faint and obtained inconsistently. No shadows have been obtained in dogs by either method of suspension or emulsion. Usually the subcutaneous injection was absorbed in forty-eight hours without marked local reaction. The amount of olive oil necessary for injection is too large to make it a practicable procedure in the human being. A new method of administering tetrabromphenolphthalein by mouth is being tried, but as yet sufficient data are not available. Numerous attempts have been made to obtain shadows after the administration of the drug by rectum. We have given it in concentrated solution and in dilute solution in the form of a rectal drip. In each instance it is poorly tolerated, but gallbladder shadows have been obtained in the human subjects and in animals. Experimentally, the toxic dose by rectum does not exceed the toxic intravenous dose by more than 25 per cent. We have not been able to obtain shadows after inunction of tetrabromphenolphthalein.

In the course of this investigation, many other substances have been studied and many interesting facts have been determined. We have obtained gallbladder shadows from other compounds than sodium tetrabromphenolphthalein and tetraiodophenolphthalein, but there has been some serious objection to each of such compounds for clinical use. The substances that we have studied will be mentioned with their outstanding features. They will be reported in detail later. Dr. Sherwood Moore and his associates have very kindly made all roentgen-ray exposures. Dr. Drake of the Research Department of Mallinckrodt Chemical Works has prepared many of the substances that we have used.

We have tried, besides the calcium and the sodium salt of tetrabromphenolphthalein, the strontium and thorium salt. The latter two salts are considerably more toxic than the first two and are not nearly so soluble. Early in the experimental work, it was found that phenoltetrachlorphthalein will not produce a shadow of the gallbladder after intravenous injection. This is doubtless due to the fact that the atomic weight of chlorin is 35.46, while that of bromin is 79.92 and iodin 126.92. Opacity of a substance to the roentgen ray seems to be dependent on the atomic weight. Dibromdiiodophenolphthalein has not produced a shadow, nor has dibromphenolphthalein. Octobromphenolphthalein is about as soluble as tetrabromphenolphthalein, but it is much more toxic. A shadow of the gallbladder has been obtained after its use. It was thought that if chlorin atoms were combined with tetrabromphenolphthalein, a liver function test could be carried out at the same time that the roentgen-ray studies of the biliary tract were being made. Although the blood plasma is stained a deep red after the injection of tetrabromtetrachlorphenolphthalein, no gallbladder shadows were obtained. This dye is much more toxic than tetrabromphenolphthalein and its injection is painful. Sodium tetrabromphthalate was found to be too toxic. No shadows were obtained after its injection. Likewise, tribromphenol was found to be very toxic, producing convulsions soon after injection.

We have not been able to produce shadows of the gallbladder after the injection of dibromphenolsulphonephthalein, di-iodophenolsulphonephthalein,

tetrabromphenolsulphonephthalein or tetraiodophenolsulphonephthalein. They stain the entire tissue of the body if given in any considerable dose. It was thought that the above mentioned sulphonated compounds might produce shadows of the kidney even if they failed to produce cholecystograms; but the results so far have been unsatisfactory.

Eosin, which is the alkali salt of tetrabromfluorescein, will produce gallbladder shadows, but it stains tissue deeply. Rose bengal, the alkali salt of tetraiododichlorfluorescein, will produce gallbladder shadows after intravenous injection, but it also stains tissue deeply when given in sufficient dose for this purpose. Erythrosin, the alkali salt of tetraiodofluorescein, has produced shadows. It is inconsistent in its action and stains the entire tissues of animals. Phloxin, the alkali salt of tetrabromdichlorfluorescein, has not produced gallbladder shadows. Brilliant vital red is excreted in the bile in large quantities, but does not produce a shadow; it stains all body tissue in a large dose.

Hexamethylenamin iodin compound was found to be much too toxic. It is soluble only in a potassium iodid solution.

Arsphenamin, although it contains a metal and is largely excreted in the bile, has been found not to cast a shadow, at least in the syphilitic subject. Another metal, mercury, when given in the form of mercurochrome-220 soluble, has failed to produce shadows, although it is a fairly efficient biliary antiseptic.

The action of other dyes has been studied from various aspects. Among those studied are trypan blue, methylene blue, gentian violet, fluorescein, azorubin and phenolphthalein. Much experimental work remains to be done with new and old compounds.

Clinically, we have found the sodium salt of tetrabromphenolphthalein the most satisfactory compound for the roentgenologic diagnosis of gallbladder disease. To visualize the gallbladder in the human being, 4.5 or 5 gm. of the sodium salt of tetrabromphenolphthalein is dissolved in from 35 to 40 c.c. of freshly distilled water and filtered. It is then sterilized by heating in a boiling water bath for fifteen or twenty minutes. This dose is sufficient for a person weighing 125 pounds (57 kg.) or more and should be reduced for patients weighing less. The solution is given intravenously with a syringe in two doses, one-half hour apart, before breakfast between 7:30 and 9 a. m. Care should be taken not to allow extravasation into the extravascular tissue, on account of the danger of tissue necrosis.

In the last fifty-five patients injected with sodium salt of tetrabromphenolphthalein, thirteen patients experienced unpleasant sensations, as dizziness or nausea, of which number nine had nausea with vomiting and four, or 7 per cent., had nausea, vomiting, various body pains and fall in blood pressure. All the reactions were transitory, and invariably, even in those suffering the severest reactions, the symptoms completely disappear within a few hours. The patients having transitory fall of blood pressure were largely afforded prompt and permanent relief by the administration of from 0.5 to 1 c.c. of epinephrin intramuscularly. By using absolutely freshly distilled water, dye that has not undergone changes by exposure to light and air, clean glassware, and instituting ordinary care, the reactions will be largely eliminated.

Certain orders for the patient are essential.

1. Breakfast should be omitted.
2. Lunch should be omitted (the patient may have a glass of milk).
3. Protein should be omitted from the evening meal.
4. While awake, the patient should take 2 gm. of sodium bicarbonate every three hours for forty-eight hours. (The rationale of this will be explained in a subsequent paper.)
5. The patient may have water by mouth.
6. The patient should lie on the right side of the abdomen.

Roentgenograms are taken four, eight, twenty-four and thirty-two hours after injection.

The criteria for normal and pathologic gallbladders are given in our former publications.

Dr. Sherwood Moore and his associates of the roentgenologic department use the following technic in making the cholecystograms: A radiator Coolidge tube is used with duplitized films under double intensifying screens. The smallest practical diaphragm is used, and compression is made with the cone on the patient, who lies on his abdomen on the table. A flash exposure is made, a 60 milliampere current with a 5 inch spark gap being used. The spark gap varies with the thickness of the patient. The Buckey diaphragm is not used.

SUMMARY

1. Cholecystography has been shown to be possible by a variety of substances.
2. The criteria that distinguish the normal from the abnormal biliary tract have been established.
3. With the aid of this method, we have been able to make a correct diagnosis in 95 per cent. of the cases of cholecystitis, with or without stones, which it has been possible to verify by operation and pathologic examination of the gallbladder.
4. This method has proved to be accurate even in cases of very early cholecystitis.

SYNOVECTOMY AND FAT PAD REMOVAL IN THE KNEE

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Synovectomy is primarily conceived to satisfy a causal indication, by removal of the diseased synovial sac as the principal seat of the local pathologic changes of the joint. It has been justly reasoned by Swett and others that even under the aspect of being a systemic condition, chronic joint disease is duly benefited by a procedure that removes a local focus of infection in the joint, certainly not less potent than other foci situated more remotely.

In view of the great frequency and variety of cases of chronic arthritis, a careful selection is urged by Swett, Ellis and others for the performance of this operation, and very wise and judicious restrictions have been drawn, limiting the indication to certain types and certain clinical phases.

Jones considers as suitable a definite type of low grade infection in which pathologic lesions still remain after months or years, and which is characterized by synovial hypertrophy, bony exudates with marginal osteophytes, atrophy of articular cartilages and hypertrophy of the infrapatellar fat pads and the suprapatellar pouch.

Another suitable type of chronic arthritis of the knee joint are the cases of so-called lipoma arborescens or villous arthritis. A third type are the rare cases of osteochondromatosis described by Whitlock and Henderson, in which the synovial membrane is wrinkled and pouched and carries multiple fibrous tags, the ends of which are covered with cartilage.

It is argued that synovectomy, aside from removing mechanical obstacles and aside from eliminating the infectious focus within the synovial membrane, also exercises an indirect influence on the metabolism by restoration of the function of the joint.

The removal of synovial membrane of diseased joints for the purpose of effecting biologic as well as functional restoration is, in a sense, rather a new undertaking. It is not so much the removal of diseased tissue, since this has been done before, for instance, in tuberculosis, even though unsuccessfully in this case; but what is rather new is the fact that return of joint mobility is expected and that the burden of this is largely placed on the regeneration of a more or less resected synovial membrane and on the elasticity and pliability of extensive scar tissue formed after operation.

From considerations such as these, the problem seems to have two different though closely related angles. One is the mechanical effect of the operation. It is obvious that the removal of interposing fringes or fat pads facilitates alinement of the knee. The tendency to flexion contracture and, in certain cases, to posterior subluxation of the tibia with outward rotation obviously occurs under the influence of muscles contracted from inflammatory causes, and opens the way to subsequent proliferation of fat masses, to valgus position and to the relaxation of the median structures of the knee joint. The resulting general disalinement of the extremity with a persistent faulty static strain represents the mechanical factor of the disability. The same uncompromising attitude toward completion of correction, as observed in other instances of deformity or disalinement, obtains here also.

Fig. 1 (Case 1).—Edema; hyperemia (static); chronic inflammation, quiescent.

The other angle is represented by the inflammatory condition of the synovial membrane, and centers principally in the question of removal of diseased tissue and its influence over restoration of mobility of the joint. Does synovectomy contribute to the increase of range of motion in the knee, and under what conditions?

In point of alinement, I believe there is no doubt that this is an absolute prerequisite for the weight-bearing function of the knee and must be satisfied.

In point of restoration of motion, however, there is room for doubt. It has been argued in favor of the latter point that, in order to obtain motion following operation, only joints in the state of quiescence, as represented by the three types mentioned before, should be operated on. In the course of this paper, however, I shall endeavor to show that the clinical determination of a quiescent joint is by no means easy, and, above all, that clinical quiescence does not mean a quiescent joint from the pathologic point of view.

Out of a material of about 300 cases of chronic arthritis of the knee, mono-articular and polyarticular types, only eighteen patients were operated on, with a total of twenty knees. Eliminating six cases as undetermined and two cases for obvious errors in indications, there remain twelve cases with the time of observation ranging from three months to fourteen months, in which end-results were obtained both in regard to mobility and in regard to the alinement and weight-bearing function. Mobility was decreased in five and reduced to nothing in two cases, while it was increased in two cases and enlarged to full motion in three.

Fig. 2 (Case 2).—Hyperemia; edema (static); thickened vessels; new vessels; traumatic; subchronic changes.

Weight bearing, however, was found good and painless in eight cases, fair in three, and poor in one case, while the alinement was found good in eleven cases and poor in one.

The observations made on twelve cases in which careful histologic data were obtained showed that whatever the clinical classification might have been, three groups could be distinguished pathologically: traumatic cases, quiescent chronic inflammation and chronic recurrent inflammation.

TRAUMATIC CASES

In the first group, following a history of trauma, often lockage with numerous attacks, a condition of chronic synovitis developed, and at operation, aside from the removal of loose bodies, there were found and removed enlarged fringes and fat pads that had formed obstacles to correction. Microscopically, there were hyperemia and edemas obviously of static character. There were old vessels with thickened walls often obliterated, and here and there lymphatic infiltration and new-formed vessels, showing that the condition, though originally traumatic, had slight exacerbations of subchronic character. There was either no erosion or very limited erosion, and there was no formation of pannus. One case is of especial interest because the history as well as the clinical observation gives a typical picture of osteochondritis dissecans following a fall. At operation, however, rice bodies were found with pannus, some erosions and calcified fringes, and the microscopic picture showed inflammatory old scar tissue with calcification on which there were grafted young typical tubercles with giant cells, but no caseation. This case was evidently one of traumatic arthritis with superimposed tuberculosis.

Fig. 3 (Case 3).—Chronic inflammation; scar formation; typical young tubercles; no caseation; traumatic arthritis with superimposed tuberculosis.

CASE 1.—A man, aged 53, had lockage of the knee following trauma, of one year's standing, with many recurrences. There was grating and tenderness, with weight-bearing pain, flexion contracture and restricted motion. The operation consisted in removal of loose semilunar cartilage and infrapatellar fat pads. The ultimate result was complete return of motion, painless weight bearing, perfect alinement and normal function. The microscopic section in this case showed thickened,

Fig. 4 (Case 4).—Traumatic; passive hyperemia; edema; chronic inflammation, quiescent.

almost obliterated vessels and passive hyperemia of presumably static nature. There were edema and hemorrhage. The case was one of chronic inflammatory nature quiescent, on the basis of trauma (Fig. 1).

CASE 2.—A man, aged 29, had locking of the knee in numerous attacks following trauma, of four years' standing. The knee presented itself in a state of lockage with swelling, weight-bearing pain, flexion contracture and a loose body felt under the skin. At operation, several loose bodies were removed, as well as fat pads and fringes. There were no erosions. This case resulted in complete restoration of weight-bearing function, complete alinement, and the mobility had been regained of 50 per cent. of normal motion during six months' observation. Histologic examination revealed hyperemia and edema with lymphocyte infiltration, and old, thickened vessels, almost obliterated, as well as new formed vessels. This case, therefore, was not entirely traumatic and showed chronic inflammation with subchronic changes. The hyperemia and edema were apparently of static nature (Fig. 2).

CASE 3.—A man, aged 18, complained of disability of the knee following a fall on the flxed knee, of four years' standing. The knee showed swelling, tenderness, grating, lateral disability and infiltration. The history as well as the roentgen-ray picture seemed to be typical of an osteochondritis dissecans. At operation, however, rice bodies were found, pannus erosions and calcified fringes. Synovia, pannus, and fat bodies were removed. Histologic examination revealed chronic inflammatory tissue with scar formation and places of calcification. There were found typical tubercles with giant cells, but no caseation. This case was a traumatic arthritis with superimposed tuberculosis, the latter of evidently recent nature (Fig. 3).

Fig. 5 (Case 7).—Chronic inflammation, quiescent.

CASE 4.—A woman, aged 45, had a traumatic condition, osteochondritis dissecans, with two free bodies. Histologic examination revealed pronounced hyperemia and passive edema; there was very little infiltration with scar tissue. There was static hyperemia of the hypertrophied fringes. She is now under observation (Fig. 4).

CASE 5.—A woman, aged 27, suffered from a traumatic disability of the knee joint, of four years' standing, with limitation of motion, pain, tenderness and swelling. At operation, there was found a pannus over the external condyle, erosions, hypertrophied fringes and a free body. The body, fringes and subpatellar fat pads were removed. Histologic examination revealed inflammatory infiltration of round cells with a few polymorphonuclear cells and numereous plasma cells. The case went on to complete static and motor recovery and perfect function. This case was that of chronic arthritis on the basis of trauma with little or no signs of active inflammation. The patient is now under observation.

CASE 6.—A. D., a girl, aged 19, had an injury to the knee, of one year's standing, resulting in tenderness and swelling of the knee with a round body visible under the skin. At operation, aside from the body, which was adherent to the synovia, the lining was thickened, fringed and bluish. Hypertrophied fringes were removed. Histologic examination revealed chronic inflammation with no signs of acute exacerbation. This case also went on to complete functional recovery.

CHRONIC INFLAMMATION, QUIESCENT

The second group includes three cases in which the histologic picture showed chronic inflammation entirely quiescent, with scar tissue and few nuclei. There were no new vessels and occasionally only lymphocytic infiltration. The tissue was in the stage of retrogression and shrinkage.

Fig. 6 (Case 8).—Scar tissue; occasional infiltration; stage of retrogression and shrinkage.

CASE 7.—A man, aged 57, suffered from a polyarticular involvement of nine years' duration, resulting in flexion contracture of the knees with swelling, grating, crepitation and weight-bearing pain. There was disalinement. At operation, there were removed hypertrophied fringes as well as fat pads. There was partial erosion of the cartilage. The case went on to good alinement, painless weight-bearing, but restricted motion. Histologic examination revealed chronic inflammation entirely quiescent (Fig. 5).

CASE 8.—A woman, aged 38, had a polyarticular involvement of six years' duration, apparently quiescent. Clinically, there was swelling, slight tenderness and right angle contracture of both knees. Both knees were operated on. There was no erosion, but numerous enlarged fringes and enlarged fat pads. This case went on to good alinement and good weight-bearing function, but a further decrease of the very small range of motion in the knees. Histologic examination revealed that the scar tissue was not very old. There were no new vessels. There was occasional lymphocytic infiltration, with a stage of retrogression and shrinkage (Fig. 6).

CASE 9.—A man, aged 44, complained of a polyarticular development of three years' duration, swelling and flexion contracture of the knee, limitation of motion to 70 degrees, and weight bearing painful. At operation there were removed hypertrophied fat pads and fringes. There were no erosions. Histologic examination revealed chronic infiltration with thickened vessels in an entirely quiescent stage. This case

went on to good weight bearing and alinement, and retained its range of motion of 70 degrees (Fig. 7).

CHRONIC RECURRENT INFLAMMATION

In the third group, there were five cases of chronic inflammation with subacute or acute exacerbation. In these cases, there was scar tissue with thickened vessels evidencing an old chronic inflammation; also hyperemia of the perivascular tissue with static edemas and, finally, diffused and circumscribed infiltration by lymphocytes and plasma cells.

Fig. 7 (Case 9).—Infiltration; thickened vessels; hyperemia (static); chronic and subacute; inflammatory.

Fig. 8 (Case 12).—Young vessels; infiltration; lymphoid follicles; fibrin; hemorrhage; chronic, recurrent inflammation, with acute and subacute stages.

CASE 10.—A woman, aged 30, had a polyarticular development of seven years' duration, with swelling, tenderness and weight-bearing pain, as well as disalinement of the knee. At operation, enlarged fat pads and fringes were removed. There were moderate erosions and formation of a pannus. Histologic examination showed scar tissue with thickened vessels, cell infiltration and static hyperemia. This case was observed for fourteen months, and went on to good alinement, good weight bearing, and good function, but only 15 degrees of motion (Fig. 9).

CASE 11.—A woman, aged 28, had a polyarticular development of three years' duration. There were swelling, weight-bearing pain and valgity of the knee. At operation, synovial folds, fringes and fat pads were removed. There were no erosions. Histologic examination revealed granulation tissue, young vessels, hyperemia, plasma and lymphocytic infiltration. There were numerous lymphoid follicles under the epithelial lining and evidences of hemorrhage. This was a case of chronic recurrent inflammation with acute and subacute stages. This case was observed for only two months, but during that time the patient developed no motion (Fig. 10).

CASE 12.—A woman, aged 26, had a monarticular development on a traumatic basis of two years' duration. There was slight flexion contracture with lateral motion and swelling. The operation consisted in fat pad removal. Histologic examination revealed chronic inflammation with new formation of vessels, proliferation and lymphocytic and plasma cell infiltration. This case, chronic, with subchronic exacerbation, went on to good weight bearing and good alinement, but the motion so far is very slight (Fig 8).

Fig. 9 (Case 10).—New vessels; proliferation; infiltration; chronic inflammation, with subacute exacerbation.

CASE 13.—A woman, aged 27, suffered from a polyarticular development of eight years' duration. The knee showed swelling, tenderness, flexion deformity and grating. At operation there were removed enlarged fat bodies and thickened and infiltrated, bluish synovial tissue. There were no erosions On histologic examination, the tissue showed connective tissue with young vessels, diffused lymphocytes and plasma cells. It was in the stage of subacute nonquiescent inflammation. The patient was observed only a short time (Fig. 11).

CASE 14.—A woman, aged 44, had a polyarticular development of eleven years' duration. Both knees were contracted at 90 degrees; there were swelling and tenderness. Motion was restricted to 20 degrees. At operation there were removed thickened synovia and fat pads. Histologic examination revealed large lymphocytic infiltration, plasma cells and fibroblasts; also young but thickened vessels and chronic inflammation with subacute exacerbation. The case went on to good alinement and good weight bearing, but the motion remained as restricted as before operation (Fig. 12).

SUMMARY

The fact that weight bearing was painless in 66 per cent. substantiates the contention that alinement of the knee joint into the normal position is a necessary prerequisite for its function. To obtain this, in some cases it is necessary to do hamstring tenotomies and osteotomies of the femur to effect a general realinement of the extremity, and in a number of cases, namely, in those in which there is pouching on extension between the joint ends of femur and tibia, especially in villous arthritis cases, systematic removal of the fat pad will permit of realinement of the knee, thereby eliminating the damaging factor of static strain. Conversely, of these fourteen cases, only two show increase of motion over the preoperative condition (14 per cent.). This shows that the merely traumatic and quiescent cases, and especially the former, respond far differently to the operation as far as restoration of motion is concerned than do the chronic inflammatory cases, which are clinically quiescent, but which, on histologic examination, show evidences of acute and subacute changes, superimposed on chronic inflammation. The latter patients did not, as a rule, develop more motion than they had before operation, and some of them showed a decided restriction of motion even after a period of observation of more than one year.

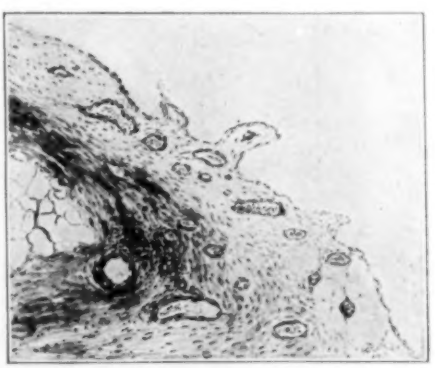

Fig. 10 (Case 11).—Connective tissue, with young vessels; infiltration; subacute, not quiescent, inflammation.

CONCLUSION

While the series of cases is extremely limited and time of observation short, we feel that the conclusions may be drawn from it that restoration of motion fails in many cases either because clinical quiescence is not

identical with anatomic quiescence, or possibly because the operation itself is not liable to contribute to or rather liable to detract from the range of motion of the joint by virtue of the formation of extensive scar tissue following excision of the synovial membrane. On the other hand, the analysis of the twenty knee operations makes me feel that the removal from the knee of obnoxious tissues that stand in the way of complete correction and perfect alinement is justified, because, while not productive of increase of motion, it is productive of good alinement and good and painless weight-bearing function.

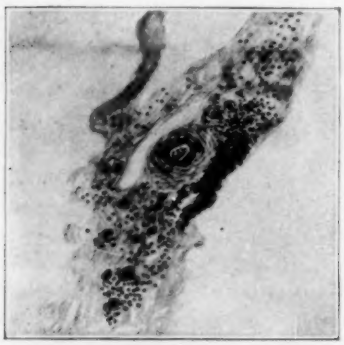

Fig. 11 (Case 13). — Lymphocytic and plasma cell infiltration; young and thickened vessels; chronic inflammation with subacute exacerbation.

ABSTRACT OF DISCUSSION

DR. NATHANIEL ALLISON, Boston: Dr Steindler has shown us the next step forward in the diagnosis of chronic joint troubles. The value of what he has presented should be estimated, not from its therapeutic side, but from the standpoint of diagnosis. He has made a series of sections of the synovial membrane taken from diseased knees, putting us on the track of really what is the matter with these knee joints.

DR. FRANK D. DICKSON, Kansas City, Mo.: This operation of synovectomy has proved a very satisfactory procedure in the hands of those who have tried it. I am firmly convinced that in a great many of these joints there is an actual bacterial infection in the synovial tissue. Skilful handling is required. The culture medium should be properly prepared and right at the operating table. The tissue should be put directly from the operative field into the medium and kept warm. I know that in a great many of these cases one can get cultures of bacteria from these joints. We have done this in four cases. So I believe that in synovectomy, not only do we remove obstruction and give opportunity for more flexibility, but we also remove actual sources of infection just as we do when we take out tonsils. In other words, there is actual infection of the synovial membrane, and if one

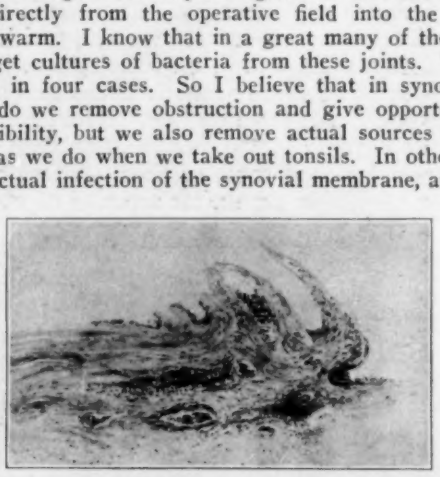

Fig. 12 (Case 14).—Scar tissue; thickened vessels; diffuse infiltration; blood pigment and hemorrhage; chronic infiltration with subacute recurrences.

takes it out one takes out a focus of infection. We frequently find improvement in stiffness of joints that we have never touched at all after this procedure.

DR. ARTHUR STEINDLER, Iowa City: The problem was simply to demonstrate that one cannot make a clinical diagnosis even in the majority of cases of a quiescent joint, and if quiescence of the joint is a prerequisite of undisturbed regeneration of such parts of the synovia as are left, I believe we are confronted with a very serious obstacle. If, on the other hand, we can remove synovial membrane from a joint without causing any exacerbations that may lead to scar tissue not compatible with free motions, then everything is well and good. But the latter experience would be unique and does not apply, so far as I know, to our general ideas of behavior of joints in chronic and subchronic inflammation.

PRIMARY HYPERTROPHY OF THE GUMS *

S. D. RUGGLES, D.D.S.
PORTSMOUTH, OHIO

A diligent search of our own and foreign language publications reveals but few reported cases of this disease, and of these only a few compare in extent to the cases to be reported at this time. Hypertrophies commonly seen by the stomatologist arise from broken down roots, irritations resulting from faulty dentistry, deposits of calculus, malocclusion, etc. The condition under consideration is not the result of these agencies and bears little or no resemblance to them.[1]

Well authenticated cases show heredity,[2] the disease having been traced through three generations,[3] with

Fig. 1.—General appearance before operations.

several cases in the same family,[4] while in a family of five only a single case developed.[5] Males and females are about equally affected, with possibly a slight preponderance of cases among females. All cases reported since 1839 are of the various members of the Caucasian race. The disease is undoubtedly congenital in some cases,[6] and nearly all are noted in early life.[7] Two have been reported as late as the twenty-sixth and thirtieth

* Read before the Section on Stomatology at the Seventy-Fifth Annual Session of the American Medical Association, Chicago, June, 1924.

1. Greig, D. M.: On Primary Hypertrophy of the Gums, and on Reduplication of the Lip, Brit. Dent. J. **35**: 757-763, 1914.

2. Heath: Two Cases of Hypertrophy of the Gums and Alveoli Treated by Operation, Tr. Ocont. Soc. Great Britain **11**: 18-26, 1878-1879. Raynal, T.: Deux cas d'hypertrophie gingivale, generalisée congénitale et familiale, Marseille méd. **46**: 577-590, 1909.

3. Raynal (Footnote 2).

4. Heath (Footnote 2).

5. Ironside, A. E.: A Case of Hypertrophy of the Gums, Dent. Rec. **25**: 461, 1905.

6. Heath, C.: Clinical Lecture on a Case of Hypertrophy of the Gums, Brit. M. J. **1**: 1073, 1897; J. Brit. Dent. A. **18**: 307-11, 1897. Raynal (Footnote 2). MacGillivray, P. H.: On a Case of Hypertrophy of the Gums and Alveolar Processes, Australia M. J. **16**: 239-242, 1871. Gross: Case of Hypertrophy of the Gums, Louisville Rev. **1**: 232-237, 1856.

7. Heath (Footnote 2). Greig (Footnote 1). Heath, C. (Footnote 6). Humphry, G. M.: Unilateral Hypertrophy of the Gums Associated with Other Abnormalities, Chiefly Hypertrophic and Unilateral, Ann. Surg. **3**: 1-8, 1886. Hutchinson, R.: Hypertrophy of the Gums, Proc. Roy. Soc. Med., Sect. Stud. Dis. Child. **81**: 30-32, 1914-1915. Ironside (Footnote 5). Berger: Hypertrophie des gencives, Bull. et mém. Soc. de chir. de Paris **31**: 298, 1905.

years.[8] No case has been observed in an edentulous mouth.[9] The upper jaw alone was involved in only one case, and twice the lower jaw was affected singly. In all other cases, both jaws were affected.[10] The growths cover the alveolar borders of the jaw, and may be uni-

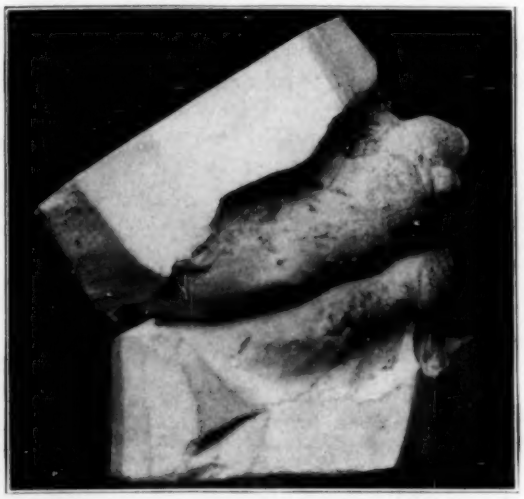

Fig. 2.—Lateral view of plaster models before operations.

lateral[11] or bilateral.[12] In color and firmness, the growth resembles the normal tissue, but is so excessive in quantity as to cause great deformity.[13] Both permanent and deciduous teeth may be entierly covered, the nodular formations often outlining their positions, and, in some instances, partially erupted teeth may show, indicating various degrees of misplacement. The facial deformity is compared to that of a hippopotamus[14] by some authors. The usual symptoms of swelling, bleeding, discharge and pain are absent.[15] Only a single case[16] is cited in which pain was present. The tissue is firm and dense, fibrous in texture, normal in color, and excessive on the labial, lingual and occlusal surfaces.[17] A distinct line of demarcation is noted at the junction of the gingivus with the mucous membranes. Mastication is usually performed with comfort, and as a rule the patient comes for relief from deformity. Mental and physical defects[11] are not a necessary accompaniment, but occur frequently enough to be a matter of interest.[18]

The etiology is obscure, as is usual with diseases of such rarity. Most authors class the condition as a fibroma, of slow growth and benign. Tuberculosis is mentioned twice[19] in the parents of those affected with the excessive hypertrophy. A blood Wassermann reaction was reported in only two[20] other cases besides the ones reported here. All were negative. The statement is justified that up to date one may not look to tuberculosis or syphilis as a predisposing cause. The various methods of treatment are of interest. Paring off the growth[21] to expose the teeth in an attempt at conservation has been tried repeatedly, but was invariably a failure. Also the actual cautery[22] was unsuccessful. The removal of teeth singly is of no avail. Early writers were not familiar with the histology of the tissues involved; otherwise, such attempts would not have been made. Kraus reports apparent success with radium. The period of observation was limited to four months, however. Successful operations invariably include the removal of the teeth, the alveolar process and the soft tissues.[23] Salter was probably the first to stress this point to Heath, and Tomes proved their reasoning to be correct.[14] This is also corroborated by Black.[24]

In July, 1923, Dr. J. T. Hughes of Oak Hill, Ohio, referred two cases of this type of hypertrophy to me for examination and treatment. The history is complete and interesting. More than eighty years before, the ancestors of these two boys came to this country from Wales. They were farmers, as have been most of the family since. The condition appears in the children of the female offspring. The ten children of a male member of the family were entirely freely from the trouble. The degree or extent of the disease varied in the different families. The mother was a victim and was successfully relieved by operation. The two cases presented here are the ninth and tenth in three generations.

Fig. 3.—Occlusal view of plaster models before operations.

In general, the patients showed embarrassment or a self consciousness of their condition. As seen in the illustrations, the muscles of the face appear to be drawn or on tension; the lips are everted and the mouth is

8. Heath, C. (Footnote 6). Bauer, W.: Ein Fall von chronischer Hypertrophie der Gingiva, Wien. klin. Wchnschr. **29**: 115, 1916.
9. Hutchinson (Footnote 7).
10. Hesse: Gingivitis hypertrophica und ein Fall von symmetrischen Kieferfibromen bezw. Osteofibromen, Deutsch. Monatscher. f. Zahnh. **28**: 196-205, 1910.
11. Humphry (Footnote 7).
12. Hisey, J. N.: A Case of Excessive Hypertrophy of the Gums, Dental Cosmos, June, 1893.
13. Heath, C., MacGillivray (Footnote 6).
14. Heath, C. (Footnote 6).
15. Greig (Footnote 1). Raynal (Footnote 2). Gross (Footnote 6).
16. Bauer, W.: Die chronische Hypertrophie der Gingiva, Ztschr. f. Mund.- u. Kieferchir., 1916-1918, pp. 244-251.
17. Hisey (Footnote 12). Greig (Footnote 1). Heath, C. (Footnote 6). Hutchinson (Footnote 7).
18. Hisey (Footnote 12). Humphry, Berger (Footnote 7). Heath (Footnote 2). Heath, C. (Footnote 6).
19. Kraus, M.: Chronische hyperplastische Gingivitis, Ztschr. f. Mund.- u. Kieferchir. **1**: 98-109, 1914-1915. Sachse, B.: Ueber einem Fall von Gingivitis hypertrophica chronica, Deutsch. Monatschr. f. Zahnh. **37**: 490-496, 1909.
20. Ironside (Footnote 5). Gross (Footnote 6).
21. Heath, C. (Footnote 6). Kraus (Footnote 19).
22. Kraus (Footnote 19).
23. Hisey (Footnote 12). Heath (Footnote 2). Greig (Footnote 1). Humphry, Berger (Footnote 7). Howard, Menfee: An Unusual Case of Alveolotomy, J. Am. Dent. A. **10**, No. 6. MacGillivray (Footnote 6).
24. Black, G. V.: Special Dental Pathology.

large, owing to a constant effort to cover the deformity. The central portion of the face is pushed forward, giving a greater distance between the occiput and the mouth. The mandibular development is much below normal, thus accentuating the maxillary hyperdevelopment. After operation, the expression is markedly changed for the better. The muscular effort and strain are relieved, and a restful expression is substituted for one of distress. The profile is the more noticeably improved.

REPORT OF CASES

CASE 1.—*History.*—E. H., a boy, aged 15, a student in a country school, passing with a yearly average of 85, requested an operation for esthetic reasons. He had had the usual childhood diseases, and pneumonia twice. The hypertrophy dated from birth, though it was not so prominent with the deciduous teeth. He commenced to lose these at the fifth year, and as the permanent ones erupted, the progress of the hypertrophy was more noticeable. At the time the patient appeared for operation, the remarks of classmates had become too embarrassing.

Physical Examination.—The boy was of good height and weighed 107 pounds (48.5 kg.). He suffered frequently from nosebleed. There was no complaint of headaches. He mentioned that colds often occurred with coughs, continuing for a long period thereafter. There was no indigestion or other illness. The thyroid and other glands were normal. The urine was normal and the blood Wassermann reaction was negative, as were other physical findings. Blood examination showed: hemoglobin, 115; red blood corpuscles, 6,100,000; leukocytes, 10,000. Coagulation time, three and one-half minutes.

Oral Condition.—When the mouth was opened, the uvula was seen to be much enlarged. In the upper maxillary arch, eight teeth were just visible, two molars, four bicuspids and the right and left central incisors. From the tuberosity to the median line was 2⅞ inches (73 mm.), the width in the molar region being 2⅝ inches (67 mm.). The arch was 1 inch (25 mm.) deep, and the distance between the hypertrophied ridges was seven-eighths inch (22 mm.). The width over all in the molar region was 2⅝ inches (67 mm.). The thickness of the growth at the incisors was three-fourths inch (20 mm.) and in the molar area, it measured 1 inch (25 mm.).

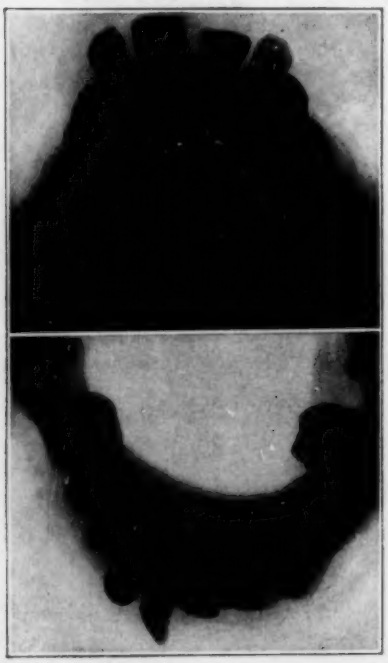

Fig. 4.—Malposition of maxilla and mandible.

In the mandible, eleven teeth were barely visible, and all were in malposition. Two molars and four bicuspids were the most conspicuous. The anterior teeth could scarcely be designated, although the cuspids were among the number. At the median line, the ridge measured five-eighths inch (16 mm.) in thickness, while the molar region was seven-eighths inch (22 mm.) thick. The dimension of the mandible over all in the molar region was 2½ inches (63 mm.). The same distance existed from the median line to the ascending ramus. The V-shaped space between the body of the mandible in the molar region was 1 inch (25 mm.), and the anterior portion was three-sixteenths inch (5 mm.). It is obvious that there was little space for the tongue. All teeth, on removal, were found to be perfectly formed and developed, and of superior quality. The soft tissue growth from the maxilla weighed 250 grains (16.25 gm.) and from the mandible 190 grains (12.35 gm.). The usual absence of pain and hemorrhage characterized these cases.

CASE 2.—*History.*—H. H., a boy, aged 17, in the seventh grade of a country school, passing with a yearly average of 95, requested operation for esthetic reasons, giving embarrassment

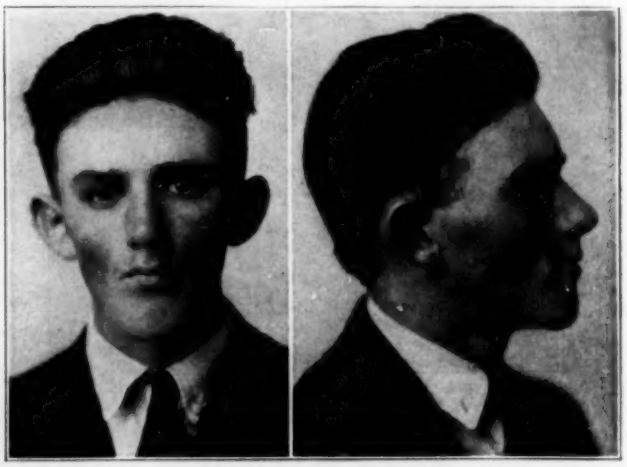

Fig. 5.—Same patient two months after operations.

at school as the reason. He had had the usual childhood diseases, as well as typhoid and grip. The hypertrophy dated from birth. Deciduous teeth erupted at 6 months and could be seen better than the permanent ones, which appeared at 6 years. The growth became more active at this time.

Physical Examination.—The height was normal; weight, 110 pounds (50 kg.). Two teeth were decayed, and pus was present on the left side. The thyroid was normal, but the cervical glands were palpable and the reflexes exaggerated. The urine was normal; the blood Wassermann reaction was negative. Examination of the blood showed: hemoglobin, 100; red blood corpuscles, 5,000,000; leukocytes, 7,800. The coagulation time was two and one-half minutes.

Oral Condition.—There were fourteen teeth visible, in the maxillary arch. The molars and bicuspids appeared to be one-third erupted, while the incisal edges were barely seen on the anterior teeth, which were decidedly malposed. The alveolar ridge measured 2⅞ inches (73 mm.) from the tuberosity to the median line, with a width of 2⅝ inches (67 mm.) in the molar region. The depth of the arch was three-fourths inch (19 mm.), and the width between the hypertrophied edges was 1¼ inches (32 mm.). The dimension of the hypertrophied tissue over all in the molar region was 1³⁄₁₆ inches (30 mm.), and in the anterior portion, eleven-sixteenths inch (17 mm.).

The first molars in the mandible had previously been removed. Nine teeth were visible. The molars and bicuspids were about one-third erupted, while the anteriors had barely penetrated the gums. At the median line the ridge measured nine-sixteenths inch (14 mm.) in thickness, while the molar region measured three-fourths inch (19 mm.). The dimension over all in the molar region was 2⅝ inches (67 mm.), and the distance from the ascending ramus to the median line was 2¾ inches (70 mm.). The space left for the tongue was 1¹³⁄₁₆ inches (33 mm.), narrowing to five-eighths inch (16 mm.) in the cuspid region. The tongue was not so cramped as in the preceding case. All teeth were perfect in form and development, and of fine quality. The soft tissues removed from the maxilla weighed 260 grains (17.7 gm.) and from the mandible 225 grains (14.6 gm.).

Roentgenographic Report.—Great difficulty was experienced in making accurate roentgenograms because of the malposition

of the teeth and the limited space within the mouth. The roentgenograms showed atrophy of the bone. This was also noticed at the operation, as the teeth were removed with elevators. The bone offered little resistance to rongeur and curet. Whether the atrophy was due to pressure, as in fibroma or to disuse, remains a question.

PATHOLOGIC REPORT

Sections from these two cases were made by Dr. A. R. Micklethwait, of Portsmouth, Ohio, who reported that they were identically the same. The material was hard, white and fibrous, with an abundant blood supply. Tissue was fixed in 10 per cent. liquor formaldehydi, embedded in celloidon and stained with hematoxylin and eosin.

The microtome knife was set for 15 mm., but the tissues were so tough and hard that they fell to pieces on cutting. It was found that 20 mm. was the lowest scale that could be used to make fairly decent sections.

Microscopically, the general appearance was that of a fibrous connective tissue tumor resembling very closely a fibroma of the uterus, with the exception that the stroma was more dense and, here and there, there were hyalin bands extending throughout the section. There were several small areas of necrosis, probably from pressure of the teeth. The epithelium covering was very dense, and extended well down into connective tissue stroma of the tumor. The blood vessels were more numerous than in a fibroma. There were no epithelial pearls, no metaplastic or hyperchromatic cells, and no mitotic figures. Not being satisfied with our report, we sent a slide to the University of Cincinnati Medical School, with the following report:

"The section appears to be from the gum and is covered with stratified squamous epithelium. The latter show some irritation, as it is sending down projections into the underlying connective tissue. The bulk of the section is composed of very dense connective tissue resembling tendon in its appearance. It is largely made up of collagen fibers with a moderate number of fibroblasts scattered throughout. The blood vessels show an increase in the adventitial cells, but the section is free from evidence of acute inflammation and of malignant change of any sort. The diagnosis is fibroma durum of the gums. The tumor is not of the type commonly

Fig. 6.—Lateral view of plaster models after operations.

called 'epulis,' as it is far less cellular and lacks the syncytial giant cells seen in that type of neoplasm."

Comment.—"Normally the gums cover the alveolar processes and hard palate, consisting of a compact inelastic fibrous mat covered by epithelium. This fibrous mat is very closely woven with periosteum, which is directly attached to the bone and completes a dense tissue characteristic for density and immobility. The fibers from this mass pass directly to, and are continuous with the peridental membrane of the tooth root, to an extent of about 2 mm. encircling the entire root. While well supplied with nerves, it is not sensitive and is abundantly supplied with capillaries and blood vessels."[24]

From the literature, we gather that our cases are distinct tumors of the gums[10] and not merely hyperplasia or chronic gingivitis reported by MacGillivray[25] and others.

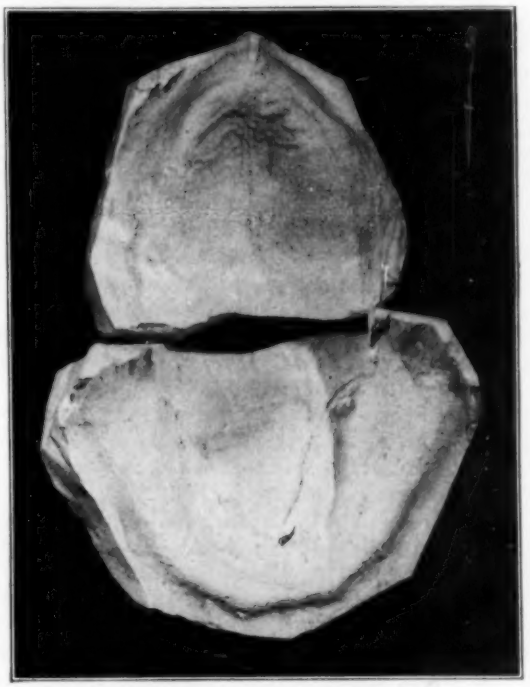

Fig. 7.—Occlusal view of plaster models after operations.

In contradistinction to Dr. Cahn's[26] cases our patients were young and there were no etiologic factors, such as high blood pressure, chronic nephritis or passive congestion. Also, they had never worn any dental appliances. There was no malignant change. However, if the condition present had been allowed to persist, no doubt in a few years they would have become malignant.

TREATMENT

The experience of others is that only a radical operation will remove the disease. The gingiva, alveolar process and the cervical margin of the peridental membrane constitute the chief factors. This necessarily includes the teeth and the periosteum covering the bone.[27] By painting the gingiva and mucous membrane continuous therewith with tincture of iodin, a sharp line of demarcation is noted by the light color of the dense, fibrous growth. This is the limit of the disease. The line for incision is made at this point or slightly beyond, in the healthy mucous membrane.

RADICAL ALVEOLOTOMY

Beginning at the tuberosity of the upper maxilla,[28] the incision at the line mentioned above, down to the bone, was brought forward to the median line on both buccal and lingual surfaces. Here they are connected by a perpendicular incision. A periosteal elevator is now used to separate all the soft tissue from the lateral half of the maxilla. This tissue is very tenacious, but

25. MacGillivray (Footnote 6).
26. Cahn, L. R.: A Contribution to the Pathology of Hypertrophy of the Gums, Dental Cosmos **66**, No. 3.
27. Heath, C. (Footnote 6). Black (Footnote 24).
28. Howard (Footnote 23).

will come away in a single strip perforated by the teeth partially erupted. The opposite half is treated in the same manner. Hemorrhage will be profuse and will constantly obscure the field. Frequent sponging and a blood ejector, such as is used in tonsillectomies, are essential. The teeth are now visible, and can be removed with elevator and forceps. The throat should be well packed to avoid accident. The roentgenograms should be in a convenient place to help in the location of obscure teeth and roots. Rongeurs, curets and files are used to remove alveolar process at least one-half the depth of the socket.[29] Care must be exercised to remove all loose pieces of the process. The lack of tissue to cover this surface should not cause apprehension. Two weeks' time will be required for a new membrane to grow. Care should be exercised lest the maxillary sinuses are entered. Hot packs and the occasional use of the hemostat will control the hemorrhage. These are to be preferred to the use of the actual cautery. In operating on the mandible, the same principles were followed. Its free movement makes the work more difficult. Each operation required from one and one-half to two hours. The upper and lower jaws were operated on four weeks apart, thus allowing ample time for a good recovery. Local anesthesia can be used, but a general ether anesthesia was preferred in these cases. The average time in the hospital was four days. Hot physiologic sodium chlorid solution was the only remedy used during this period. The recovery was rapid and uneventful.

Artificial dentures have been made by Dr. Hughes, and friends of the boys report that they are much improved in bearing and manner, as well as facially.

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ILEOCECAL TUBERCULOSIS *

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Primary tuberculosis of the bowel is rare. When it does occur, it is more commonly found in young people under 18 than in older people; and is due, we assume, to ingestion of milk, butter or meat from tuberculous cows. In adults we usually find it secondary to a focus in the lungs or the bronchial glands. There are other forms of bowel tuberculosis, such as the miliary and the hyperplastic conditions.

The hyperplastic results from an attenuated infection of the tubercle bacilli, which causes proliferation of connective tissue, with tumor formation. One may state, as a general rule, that the tumor formation is inversely proportionate to the virulence of the organism. This form is usually found in the cecum and sigmoid. My own observations lead me to the conclusion that the appendix is first involved, later extending to the cecum.

I have seen five instances of this type of infection, and the picture was always the same. The appendix is large, the mesentery thickened, and both stand out prominently from the cecum. The mass has a pinkish-red appearance, closely resembling a badly infected, granulating finger.

The involvement of the cecum varies with the duration of the infection; in some cases only the ceco-appendical area is involved; in others, almost the entire cecum presents an appearance similar to the appendix, the ceco-appendix forming one tumor-like mass.

This condition will usually be found as secondary to a mild infection of the lungs. However, I am not at the moment concerned with this form of tuberculosis, as the cases that I report are of the ulcerative type; one apparently primary, occurring in a girl, aged 11 years, the others secondary to an extensive pulmonary tuberculosis.

The points I wish to present are:

1. Diagnosis is difficult.
2. It is probable that all secondary infections of the bowel are located primarily in the lower ileum, and could, if diagnosed early, be treated surgically.
3. Even in advanced cases of tuberculosis of the bowel, it may be necessary to resort to surgical measures, in order to relieve suffering resulting from intestinal obstruction.
4. Following caseation, tubercle bacilli find their way into the ileum, involving areas of the small intestine higher up. As the result of ulceration, the areas draining this portion of the bowel carry the infection to the lymphatic areas in the neighborhood of the duodenum and stomach, and, in this way, the colon, duodenum and stomach eventually share in the infection.

Fig. 1.—Small hard mass in right lower quadrant; examination by enema; fibrocaseous mass of cecum, with little or no ulceration; pulmonary tuberculosis. This illustration and Figures 2 and 3 are from roentgenograms lent by the roentgen-ray department of the Mount Sinai Hospital, New York, through the courtesy of Dr. S. J. Goldfarb.

In the early stages of involvement, there are few symptoms, except those that are ordinarily associated with pulmonary tuberculosis. The filling defects, as pointed out by Brown, are probably manifestations of extensive involvement with ulceration, and the patients at this stage are not subjects for surgery. Constipation and irregular peristalsis, manifested by colicky pains, are early symptoms of ileotuberculosis. Diarrhea occurs only when the colon is involved and as a late manifestation. This can be explained on the supposition that, provided the colon is not involved, even though the small intestine should empty itself rapidly into the cecum, the contents would be held back in the colon until the water was absorbed. After the colon became involved, rapid emptying of the bowel would follow, and it is at this stage that diarrhea, so commonly associated with ulcerative tuberculous colitis, is manifest.

29. Heath (Footnote 6). Humphry, Berger (Footnote 7). Howard (Footnote 23).

* Read before the Section on Gastro-Enterology and Proctology at the Seventy-Fifth Annual Session of the American Medical Association, Chicago, June, 1924.

Assuming that these premises are correct, ileocecal tuberculosis is amenable to surgery if an early diagnosis is made.

What methods of diagnosis are available? The presence of tubercle bacilli in the stools, the roentgen-ray, and the tuberculin test.

Fig. 2.—Ulcerative tuberculosis of the ileum and cecum; large mass in right lower quadrant; pulmonary tuberculosis.

If we know that we are dealing with a primary tuberculosis of the bowel, there is no question that the finding of tubercle bacilli in the stools, with symptoms pointing to involvement of the bowel, would be sufficient justification for exploratory laparotomy; but, unfortunately, 79 per cent. of ileocecal tuberculosis is secondary to a pulmonary or glandular involvement; therefore, this method of diagnosis has only a limited field of usefulness.

The roentgen ray also has its drawbacks. The work of Brown and Sampson,[1] published five years ago, still probably represents the most comprehensive study yet undertaken of ulcerative tuberculous colitis. The title of their paper is slightly misleading, because their findings really represent those of rather advanced cases.

Carman,[2] in the second edition of his book, has treated more elaborately all forms of tuberculosis of the gastro-intestinal tract, and divided them into three forms, nodular, ulcerative and fibrous. In view of the fact that the disease often changes from one form to the other, I think that his studies more nearly represent the true conditions as they are likely to be met clinically.

The principal finding referred to by both of them, which, I think, has been miscalled rather than misinterpreted, is that of the so-called "filling defect." It seems to me that it would be better to reserve that term for cases in which there is an actual tumor formation occupying a part of the lumen, and not apply it to the irregular filling, which must result from the associated spasm in cases of the ulcerative form; because there are times, before there is a great deal of scarring, when the spasm is relaxed, and then the appearance would not be that of the ordinarily recognized filling defect. It would seem better to use the term "filling defect" only in describing the nodular type.

1. Brown, Lawrason; and Sampson, H. L.: The Early Roentgen Diagnosis of Ulcerative Tuberculous Colitis, J. A. M. A. **73**:77 (July 12) 1919.
2. Carman, R. D.: The Roentgen Diagnosis of Diseases of the Alimentary Canal, Ed. 2.

Two cases are shown here which represent very typically these two deformities. In one (Fig. 1), in which the colon is examined with the aid of a barium enema, there is a definite tissue mass, which fills a part of the cecum, and the appearance is entirely that of any other neoplasm. However, in view of the clinical history, the general physical condition of the patient, and a moderately advanced pulmonary tuberculosis, it seemed that the lesion was more likely a tuberculous one. These findings were later confirmed by operation and histologic study.

On the other hand, the typical findings of the ulcerative type are shown in a case (Fig. 2) in which the lumen of the cecum and the lower part of the ascending colon are greatly and irregularly narrowed. During fluoroscopy, the rapidity with which the appearance of the thin line of barium, through the palpable mass, changed was very much more suggestive of an irritable, inflamed mucous membrane, with associated spasm and induration, than of the permanent defect seen with neoplasm; and, again, considering the clinical picture presented by the patient, palpation of a mass much larger than would ordinarily be found in any simple inflammatory process seemed to warrant the diagnosis of tuberculosis, rather than a simple ulcerative colitis. Subsequent operation confirmed the findings.

Figure 3 also shows a very similar spastic condition, which in all probability is the result of the muscular contraction, spasm due to the ulcerated mucous membrane, rather than the overgrowth of tissue in the terminal ileum.

A fourth case (Fig. 4) also shows a very large residue of barium in the small intestine nine hours after food, with little or no barium in the cecum. The patient had fairly advanced pulmonary tuberculosis. At operation, there was found a large tuberculous infiltration and ulceration involving only the terminal ileum. In this case, there was also a tuberculous peritonitis. This was, again, of the ulcerative type.

Fig. 3.—Ulcerative tuberculosis of ileum and cecum; large mass in right lower quadrant; patient had pulmonary tuberculosis.

I think it is not out of place here to call attention to the necessity of direct palpation during fluoroscopic examination, because frequently the size of the infiltrating and caseating mass of tissue will be entirely out of proportion to that which would be expected in a true neoplasm, with a history as long as most patients give. I might also add that it is exceedingly difficult,

if not impossible, to draw any accurate conclusions as to the size of the mass if the palpation is done through heavy lead gloves.

In my limited experience I have found that when filling defects exist neither tubercle bacilli in the stools nor the roentgen ray alone can be depended on for early diagnosis, and the tuberculin test, except in the primary condition, has the same limitations as the others. If the patient has a primary focus in some other part of the body, its diagnostic value would be negative. Therefore, we are left wholly dependent on the symptoms. These are pain in the abdomen, usually centering around the umbilicus and extending to the left side; weakness in the back; constipation; indigestion with gas; fever; loss of appetite; loss of weight; fulness after eating, and diarrhea as a terminal symptom.

I am quite convinced that a dull, aching pain on the right side, colicky in character at times, is the usual early symptom in ileotuberculosis. This is complicated by the fact that many other conditions exhibit the same symptoms, thus diminishing the value we may place on these particular indications; but I believe that when we have a patient with primary tuberculosis of the lungs, and find pain and tenderness with colicky tendency on the right side, we do not err in suspecting beginning involvement of the bowel.

I feel sure that many patients with pulmonary tuberculosis have bowel involvement; but pain in the right side being so common, no particular attention is paid to it until the destruction has become so extensive that the pain is too intense to be ignored.

Great stress has been laid on diarrhea as a symptom of ileocecal tuberculosis; but, in my opinion, this is a very late manifestation, and does not occur till after extensive involvement of the colon. In early bowel tuberculosis, I have found constipation the rule rather

Fig. 4.—Large residue in small intestine nine hours after food; adhesions between coils of small intestine; mass at terminal ileum; advanced pulmonary tuberculosis.

than the exception. This is explained on the theory that, even when ulceration occurs and the ileum empties rapidly into the colon, the colon holds the fluid contents until the water is entirely absorbed, unless the colon is itself involved. In the four cases of ulcerative type that were explored, extensive involvement of the ileum was found in three, but the colon was not involved. All four patients had constipation. All four, furthermore, had pain radiating to the left side with a severe colic that would reach a climax and then decline, leaving intervals quite free from discomfort, a phase also common in intestinal obstruction.

I have observed in these patients that the abdomen had a peculiar, doughy feeling, which I have not found in other abdominal disorders.

Fig. 5.—Nonspecific inflammation of the colon which might be mistaken for tuberculosis.

The prevailing belief that a patient suffering from pulmonary tuberculosis is injured by ether anesthesia I have found untrue. In one of my cases of ileocecal tuberculosis, with intestinal obstruction and with pulmonary condition as well, I resected the cecum under general anesthesia. The patient suffered no discomfort and made an uneventful recovery. Several of my patients with pulmonary tuberculosis, now cured of anal involvement, had to have four or five operations, which were performed under ether anesthesia, before complete recovery from the anal disturbance, and suffered no ill effects from the anesthetic.

REPORT OF CASES

CASE 1.—A girl, aged 11 years, brought to me six years ago, had always been in good health till two days before, when the family physician was called in. During these two days, she had complained of pain in the right side, and had constipation. The physician found her rigid on the right side. She had a slight elevation of the temperature. A diagnosis of appendicitis was made, and she was sent to the hospital. The abdomen was opened on the following day, by a right rectus incision, and the appendix found to be inflamed.

On further exploration, a large, tumor-like mass could be felt in close contact with the ascending colon. This was diagnosed as a possible sarcoma, but was not interfered with. The appendix was removed and the wound closed. Six days later I was called in, and decided on immediate operation. On opening the abdomen, at about the junction of the lower with the upper portion of the ascending colon, I found a large, irregular tumor mass which ran obliquely, mesocephaled with its apex over the duodenum. The ileocolic and right colic artery were both tied, and several centimeters of the small bowel, together with the cecum, ascending colon, and part of the transverse colon removed.

On account of the extent of the tumor, and because of the glandular involvement, I also removed almost all of the mesocolon. The raw surfaces were covered over, and the usual technic in reconstruction followed. The time of operation was one hour and twenty minutes.

May 18, 1918, immediately after the operation, the patient's temperature was 102 F., and the pulse 140. Within forty-eight hours after the operation, the temperature dropped to 99; and the bowels moved regularly without medicine. She continued in this way for four days, when she developed a temperature of 101, the abdomen became rigid, and she was conscious of pain over the wound. On the fifth day, her temperature was 102 and her pulse between 130 and 140. Just at the top of the wound, there was a mass about the size of an egg, which was very tender. I made a diagnosis of acute abscess, just about where the bowel had been invaginated. Under an anesthetic, and with the assistance of the nurse, I opened up a portion of the wound, found the stump of the bowel, and evacuated an abscess cavity, which contained foul smelling pus, evidently a colon bacillus infection. Three drains were inserted, one at the right, one at the left and the other in the center, and the wound was closed with silkworm-catgut sutures.

A communication from the family physician, dated May 28, 1924, states that the child is in good health and about to graduate from high school.

CASE 2.—A chauffeur, aged 29, German, strong when a child, his only illness the measles, weighing 148 pounds (67 kg.) noticed that his weight had been decreasing for the past four months, and that he perspired profusely at night, had indigestion after eating, and had abdominal pains below the umbilicus. Lately constipation had distressed him, and he had been living principally on white bread and cocoa. Examination showed râles after coughing, heard at the right apex; dulness and increased vocal fremitus, and fine râles heard over both bases. The heart was normal; the head normal; the teeth in good condition, and there was tenderness and slight rigidity in the right iliac fossa. His temperature was 101.2 F.

My diagnosis was pulmonary tuberculosis, associated with ileocecal tuberculosis. An exploratory laparotomy was made under local anesthesia. When the abdomen was opened, the peritoneum was seen to be thickened, and there was some fluid in the abdomen. The cecum was nodular and bound down posteriorly. There was some contraction of the ileocecal

Fig. 6.—Ileocecal tuberculosis, from a drawing made from a specimen removed at operation; the patient recovered.

sphincter, on account of scar tissue. Examination of the small bowel showed that it was studded with ulcers, some of them saddle shaped, and about 5 cm. apart. On account of the extensive involvement, it was deemed inadvisable to continue further exploration, and the wound was closed and the patient returned to bed. He left the hospital two weeks after the operation, and died two months later.

CASE 3.—A man, aged 30, in similar condition, was examined by means of an exploratory laparotomy.

CASE 4.—A woman, aged 36, suffering from pulmonary tuberculosis, being treated at Liberty, N. Y., was referred to the hospital because of frequent abdominal cramps just below the umbilicus, radiating to the left side. She complained of indigestion, gas, and loss of appetite. Her temperature was 101 F. Roentgen-ray examination confirmed the diagnosis of pulmonary tuberculosis; examinations were made of the blood, feces, urine and stomach contents; and, except for the absence

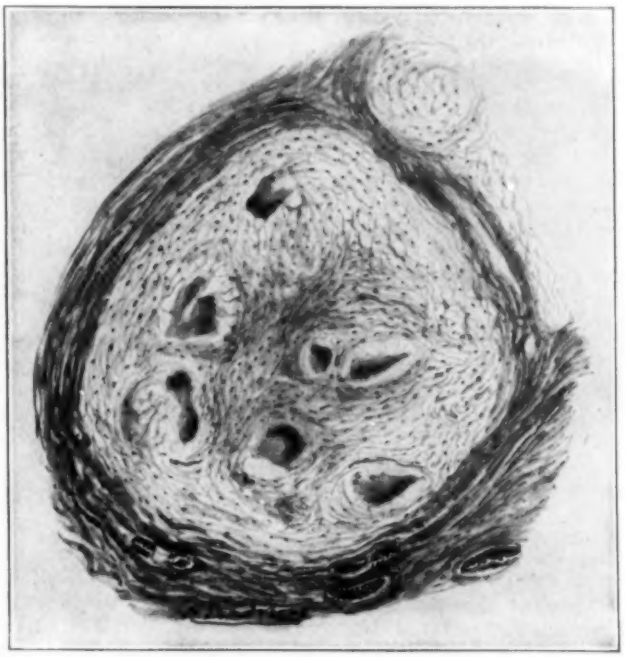

Fig. 7.—Microscopic view of a section removed from the specimen reproduced in Figure 6.

of free hydrochloric acid in the stomach, a finding of occult blood in the stools, and a marked delay in the small intestine after a barium meal, there was nothing else of interest.

After a thorough physical examination, diagnosis of ileocecal tuberculosis, with a possibility of obstruction, was made, and the abdomen was opened under local anesthesia. As the patient seemed very nervous at this stage, the examination was continued under a general anesthetic. There was a marked obstruction at the ileocecal juncture, and the small intestine was studded with tuberculous ulcers, separated one from the other by about 5 cm. At this point there was some doubt in my mind as to the best procedure to follow. Here was a patient with intestinal obstruction, due to an ileocecal tuberculosis, secondary to the pulmonary condition.

The marked, severe, abdominal cramps stood uppermost in her mind as the misery from which she was seeking relief. It was therefore imperative to help her. One of two procedures could be followed: ileostomy or resection. In a woman in such a wretched condition, ileostomy seemed out of the question, and I decided on resection. The operation was performed; she made an uneventful recovery, and returned to Liberty to continue treatment.

CONCLUSION

I appreciate, as every surgeon must who has encountered these cases, that tuberculosis of the bowel, like cancer in that region, is difficult to diagnose in the early stages; but if we are to accomplish anything here, we must be keenly alive to the fact that pain or constant discomfort in the right side, most especially in people suffering from a pulmonary condition, has a significance that should be promptly investigated. And, when diagnosed early, it is entirely amenable to surgical therapy.

205 East Sixty-First Street.

ABSTRACT OF DISCUSSION

DR. J. RAWSON PENNINGTON, Chicago: Two forms of tuberculous involvement of this region have been recognized: the enteroperitoneal and the hyperplastic. The enteroperitoneal form may involve the cecum alone, but this is exceptional. It is common for the ileum, near the valve, and the appendix as well to be attached. Then, one finds a mass of adhesions studded with caseous foci, and purulent cavities, sometimes opening into the bowel. Or the abscesses may open onto the skin surface and result in a fecal fistula; generally in the right iliac fossa, but occasionally at the umbilicus or elsewhere. Of much more importance from a surgical standpoint is the hyperplastic form, for it may simulate closely malignant disease. The ileum is seldom affected; when it is, the ileocecal valve is destroyed and the ulceration extends into the ileum, but the hyperplastic process remains limited to the cecum, which is much thickened. On rare occasions, the hyperplasia extends up the ascending colon. The two sexes are equally liable to these surgical forms. The condition is rare before 20, though it has been found as early as 4 years. It is also uncommon after 40. As to the pulmonary involvement, a considerable difference exists from the common form of tuberculous enteritis, which is a late manifestation of the pulmonary affection. In the ileocecal type, on the other hand, the lungs may be affected, but, as a rule, to only a slight extent. No doubt infection occurs from the intestinal contents, which are delayed in the terminal ileum and cecum, thus favoring inoculation of the intestinal walls. Roughly speaking, the clinical picture exhibits two phases: In some cases the irritation of the peritoneum sets up phenomena resembling appendicitis; in others, the resulting stricture gives rise to the signs attending stenoses of the bowel from other causes. In the enteroperitoneal form, at the start the stools are frequent, profuse and fluid, and contain blood, the usual signs of enteritis of tuberculous origin. Acute pain in the right fossa may then follow, or, on the other hand, pain may be the primary symptom. The swelling in the fossa remains after the acute signs subside, unlike appendicitis. Moreover, the tumefaction extends and eventually opens onto the skin, by many orifices sometimes, similar to the "watering-pot fistulas" about the anus, or the foci may burst into the bowel. Rarely do they open into the free peritoneum, and then death occurs quickly. The onset of the hyperplastic form is insidious, with anorexia, retarded digestive functions, and vague—though disagreeable—sensations in the right fossa. The progress is slow; there may be periods of improvement under appropriate therapy. Finally, the signs of narrowing of the lumen develop, constipation alternating with diarrhea; some subjects have colic-like attacks a few hours after meals, ending by meteorism locally, increased and visible peristalsis, and gurgling. Nevertheless, the patient is not entirely well in the intervals. If the patient is not too fat, the swelling may be felt and even seen; sharply limited below, above it shades off into colon, somewhat mobile and tender. The course is very slow, but as the obstruction advances emaciation becomes marked. The average duration is two, two and one-half or three years. Naturally, surgical measures are the only ones indicated, the exact one to be chosen after the parts are exposed. Other things being equal, resection is needed. There seems to be little difference in results in anastomosis, whether end-to-end, end-to-side, or side-to-side. Unilateral and bilateral exclusions have also been done.

DR. FRANK SMITHIES, Chicago: In all intermittent subinfections of the appendical zone, foci of infection about the head, teeth and tonsils may be contributory to lesions about the appendix and the ileocecal valve. Most of our cases of the type described by Dr. Lynch have occurred in young persons. It is essential to appreciate certain etiologic facts regarding this group of patients: in the first place, the nature of the infection existing in the tonsils of children. An extensive study of tonsils from children under 15, examined particularly from the bacterial standpoint, shows that 5 per cent. of such tonsils harbor tubercle bacilli. It should therefore be remembered that in young persons who have recurrent tonsillitis and who, later, begin to complain of distress in the right lower quadrant, there is a probability that we are dealing with a secondary tuberculous deposit. The tonsil may be the focus of infection which ultimately leads to an abdominal tuberculosis. Three per cent. of appendixes removed from persons under 16 years of age are tuberculous. Thus, in the type of case under discussion, the abdominal focus is localized in the appendix before the lesions become active in the bowel. It should be remembered also that in this class of case, the appendical symptoms are not quite like those which one observes in the gastric upsets from ordinary appendicitis. The tuberculous process is usually a slow one; consequently, one does not have marked gastric symptoms early. Dr. Lynch has well described the peculiar doughy "feel" that is noted on palpation of the right lower fossa. As the tuberculous lesion is a slowly progressive affair, the gastric reflexes are not acutely severe; they are mild and fairly constant; this peculiarity should strike us. A young person presents evidence of recurring infection in the right lower quadrant, without particularly severe symptoms on the part of the stomach; finally, the local condition becomes complicated by symptoms from the bowel; first, the spastic phase, with constipation and then atony alternating with spasticity, clinically, with diarrhea as an accompaniment. Too frequently, we look to the lungs for evidence of the primary focus in abdominal tuberculosis. We should remember, when observing young persons, that the primary foci of tuberculous infection are often in the tonsils; no lesions may be demonstrable in the lung by roentgen-ray examination. Such negative evidence does not prove, however, that the lesion lower down is nontuberculous.

DR. WALTER A. BASTEDO, New York: I want to say a word about the usefulness or otherwise of methods for finding tubercle bacilli in the stool. Dr. Famulener and I have made a special study of tubercle bacilli in the stool. In the last three or four years a number of patients have been sent to us, two of them from Saranac Lake, with a statement that by the antiformin method no tubercle bacilli had been found in the stool; therefore they were not tuberculous. We injected many guinea-pigs with suspected stools treated with different amounts of antiformin. But there are no criteria for the use of antiformin in clearing the stools. So we took stools from nontuberculous patients and added known tuberculous sputum to them. We have done this a great many times and have about concluded that the antiformin method for stools is worthless. For we find that when we add enough of it to a sputum infected stool to make a reasonable clearing of the stool, injection into a guinea-pig does not result in growth of tubercle bacilli.

DR. RUSSELL S. BOLES, Philadelphia: I recently reported two cases of diffuse carcinoma which had been diagnosed tuberculous peritonitis, but which at necropsy were shown to be diffuse carcinoma of the peritoneum. I want to emphasize the importance of not being misled by any findings that apparently lead conclusively to the diagnosis of either tuberculous peritonitis or diffuse carcinoma. One patient was a young woman who had enlarged cervical glands in childhood, whose mother had died of tuberculosis, and who had characteristic objective and subjective symptoms of peritoneal tuberculosis. She was operated on and a provisional diagnosis of carcinoma was made at the time of operation, but the histologic report on a section of omentum removed was tuberculous peritonitis. At necropsy she was shown to have diffuse carcinoma of the peritoneum secondary to scirrhous carcinoma of the stomach. The other patient was a man who had tubercle bacilli in the sputum, with characteristic findings of tuberculosis of the peritoneum, for which he was operated on. At the necropsy it was shown that he had diffuse carcinoma of the peritoneum. Therefore, I think we should not be influenced too strongly in making a diagnosis by any single feature in the case, even a histologic report. I also want to emphasize the use of heliotherapy as a valuable means of differential diagnosis. Dr. LoGrasso in Buffalo reports 78 per cent. of patients with tuberculous peritonitis cured under heliotherapy. The patients who responded best were those who had not been operated on and who had no advanced pulmonary disease.

DR. JEROME M. LYNCH, New York: I am very glad that Dr. Smithies, who has had a more extensive experience with this condition than I, confirms my belief that the appendix is early involved in these cases. I have always felt that this is so. In regard to abscess formation in these cases, one must always think of actinomycosis when such abscesses open into the skin. This complication I have not seen in tuberculosis. In cases of carcinoma in the ileocecal region, these begin with symptoms of dyspepsia and constipation. They have practically the same symptoms as tuberculosis, so one should not feel embarrassed if he failed to make a correct diagnosis of tuberculosis in any of these cases.

THE POSTENCEPHALITIC PARKINSON SYNDROME *

EDWARD LIVINGSTON HUNT, M.D.
AND
LEON H. CORNWALL, M.D.
NEW YORK

It has been our good fortune during the last three years to follow the course of many cases of the postencephalitic parkinsonian syndrome; the majority of the patients have been young people of the poorer class; the minority, older people in better circumstances. We have, however, found very little difference in the course of the disease in either.

In the parkinsonian syndrome occur the typical lesions of encephalitis, perivascular cell infiltration, hemorrhages, exudation, areas of degeneration, and destruction of nerve cells. These lesions occur in many and diverse parts of the central nervous system, but the basal ganglions bear the brunt of the attack. There is also an atrophy and reduction in the number of cells,

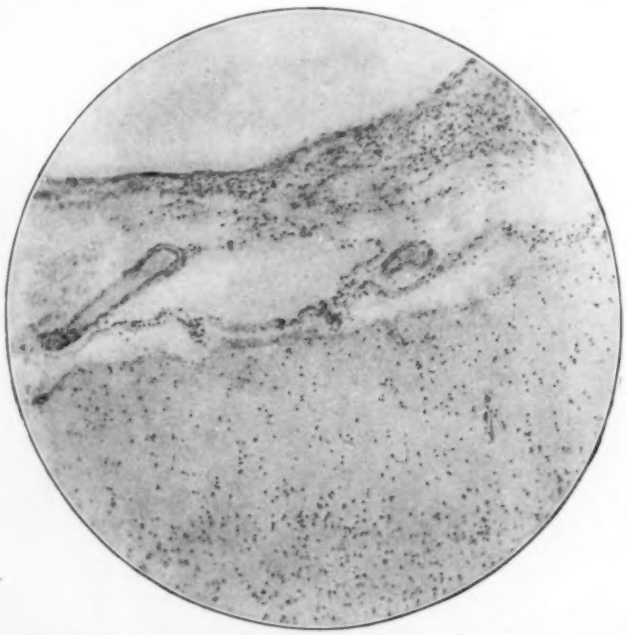

Fig. 1.—Postcentral cortex, showing edema and moderate cellular infiltration of the leptomeninges; hematoxylin and eosin; reduced from a photomicrograph with a magnification of 60.

together with a depigmentation, of a particular part of the brain; namely, the substantia nigra.

There have not been a large number of necropsies performed in cases of the parkinsonian syndrome. We were surprised to find not more than twenty-five. McAlpine has reviewed the literature and cited the opinions of all who have studied the subject. Three quarters or more of these authorities are unanimous in asserting that in the parkinsonian syndrome a characteristic injury has been sustained by the substantia

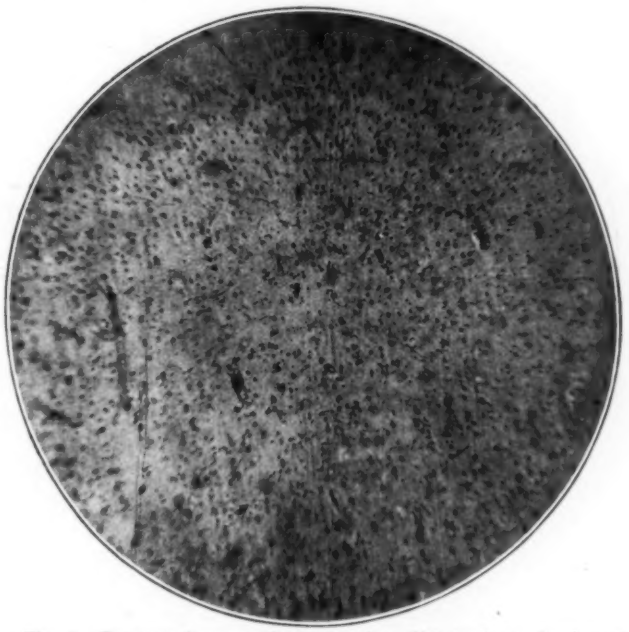

Fig. 2.—Postcentral cortex, from second to fifth laminae, showing an increase of glia nuclei; the ganglion cells can be distinguished only with difficulty; the normal architectonic arrangement is lost; hematoxylin and eosin; reduced from a photomicrograph with a magnification of 60.

nigra. They point out that in every necropsy this particular nucleus is affected, and affected in a characteristic way. They report a reduction of its cells, an atrophy of the remaining ones, and a destruction and disintegration of the nuclear pigment. From this, they reason that in that particular nucleus is situated the lesion of the parkinsonian syndrome.

It must be borne in mind that the functions of that nucleus are not well defined, and that we do not know just what would result, clinically, from a lesion of the substantia nigra. We must also remember that cases have occurred in which this nucleus was intact. These, however, have been very few. Therefore, the conclusion, while being probably correct, is still an inference and not necessarily a proved fact.

Foix, Goldstein, D'Antoni, Vigni, McKinley and McAlpine are unanimous in asserting that the lesion is situated in the substantia nigra. Miss Levy, a French pathologist, is one of the few that do not agree with the others. She concludes, after describing the changes in four cases, that as the lesions are widespread, it is not possible to draw definite conclusions as to the pathologic condition. In rebuttal, however, one finds that in her cases there did occur destruction and disintegration of pigment in the substantia nigra.

We are able to report a case of this syndrome that we followed for three years, and in which we were able to perform a necropsy. One of us (L. H. C.) found an involvement of the substantia nigra. This adds one more case to the literature, and may help to stabilize the question.

REPORT OF CASE

The patient was admitted to the hospital, Aug. 30, 1920, and was under our observation up to the date of her death, which occurred, April 4, 1923.

* Read before the Section on Nervous and Mental Diseases at the Seventy-Fifth Annual Session of the American Medical Association, Chicago, June, 1924.

She was first taken ill in March, 1919, at the age of 17, with a mild attack of influenza. Shortly afterward, she noticed difficulty in walking and a tendency to sleep. These symptoms increased so that in August, when she entered the hospital, she was rigid, and had begun to festinate. All the reflexes

Fig. 3.—Third lamina of the postcentral cortex, showing cloudy swelling of the ganglion cells, and a proliferation of the glia cells with satellitosis and neuronophagy; hematoxylin and eosin; reduced from a photomicrograph with a magnification of 250.

were active. There was a ptosis of the right upper eyelid, but the pupils showed no change. Her mentality was slow, and she displayed a constant tendency to laugh. The ophthalmoscopic examination was negative.

Two months after the illness, the patient was able to be up. She did not complain of anything, but exhibited, to a marked degree, rigidity and the phenomenon of both propulsion and retropulsion. All movements were slow in origin, apparently owing to a rigidity of the somatic musculature. The face was masklike. A rigidity of the muscles hampered speech. The tendon reflexes were all exaggerated. There was a coarse tremor of all parts of the body, most marked in the upper extremities. Attempts to stop this only tended to increase the amplitude. On both sides there was an ankle clonus, but no Babinski reflex.

There was at times a coarse, nystagmoid movement of the eyes and a left facial weakness. The Wassermann test on the blood was negative. The spinal fluid examination showed a negative Wassermann reaction, 20 cells, a very faint trace of albumin, no globulin, a positive sugar content, and a colloidal gold curve of 1111110000. The urine was negative.

From the date of her admission to the hospital, Aug. 30, 1920, until the spring of 1923, the patient grew slowly but steadily worse. The rigidity increased; moving and walking became increasingly difficult, and she developed sialorrhea. In the last year, propulsion and festination became so marked that she never walked but ran, leaning far forward. The tendency to laugh grew worse, and the face assumed the typical masklike appearance. In other words, there were present all the symptoms of the parkinsonian syndrome—rigidity, attitude, gait, appearance, sialorrhea and slowness, with a tendency to laugh. Late in March, 1923, she developed a rise of temperature with signs of consolidation, and eight days after, April 4, she died of what proved to be influenzal pneumonia.

DEFINITION

The parkinsonian syndrome describes three major and several minor symptoms. The major are rigidity, loss of automatic and associated movements, and typical appearance. The minor deal with the attitude of the patient, together with his manner of performing certain skilled acts, such as walking, talking, writing and thinking. In addition to this, there occur certain changes in secretions, reflexes and cranial nerves.

The name "Parkinson" has been derived from the resemblance that this syndrome has to Parkinson's disease, or paralysis agitans. The parkinsonian syndrome is the most frequent both of the ordinary sequelae and of the late sequelae of encephalitis. It may manifest itself in one of three ways: (1) as a prolonged type; (2) as the late manifestation of a mild encephalitis, or (3), after several months, as a late manifestation.

The best classification of the parkinsonian syndrome is into four types: (1) generalized parkinsonism without tremor; (2) generalized parkinsonism with tremor; (3) a localized type, and (4) a transitory type.

GENERALIZED PARKINSONISM WITHOUT TREMOR

It will be interesting to consider briefly the first, namely, the generalized parkinsonism without tremor, which is also the most common type. Its salient features are youth, rigidity, facial asymmetry and slowness, together with an increase of reflexes and a characteristic general appearance best described as automatic or mummy-like.

Rigidity.—The rigidity, which is so characteristic, is one of the earliest manifestations. It varies considerably; most frequently it is unilateral, but it may be general. The more usual way is for the rigidity to begin in one limb or on one side, and then slowly and insidiously involve the entire body. The course of the rigidity is progressive. It tends steadily to increase, and eventually may become extreme, giving rise to contractures. It occurs in two forms: (1) the intermittent type, and (2) "the lead pipe" form. The first is not continuous, but shows resistance to passive movements, so that it is uncertain and jerky; whereas, "the lead

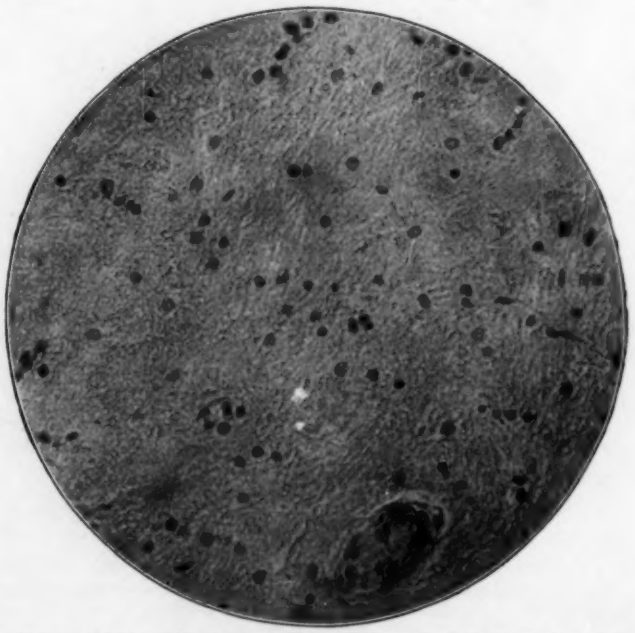

Fig. 4.—Globus pallidus, showing almost complete absence of large ganglion cells; one blood vessel shows endarteritis productiva and thickening of the wall; hematoxylin and eosin; reduced from a photomicrograph with a magnification of 250.

pipe type" is one in which the resistance is not only maintained, but also may be increased against passive movements. The neck and face also are favorite sites. The extrinsic muscles of the eye usually escape, so that

these patients can move their eyes from side to side, although the head remains immovable.

Reflexes.—The reflexes, both superficial and deep, especially in the early stages, are increased. It is not unusual to obtain clonus of the ankle and knee. In this disease more than any other, there is present a fatigability of the reflexes.

Cranial Nerve Paralyses.—These are common in the parkinsonian syndrome, because they are the most usual manifestations of an encephalitis. The oculomotor paralyses are the most frequent.

Slowness.—The slowness that appears in every movement is universal and characteristic. These patients move, talk, speak and think slowly. The attitude and general appearance is quite typical.

Tremor.—The tremor, when it does occur in this syndrome, is variable in character, distribution and degree. It may be fine or coarse, or, at different stages of the disease, may change. We should describe it as being more of the coarse than the fine type, and yet

Fig. 5.—Substantia nigra, showing cloudy swelling of the ganglion cells, increase of glia nuclei and a superabundance of small capillaries, many of which show productive endarteritis; Nissl stain; reduced from a photomicrograph with a magnification of 60.

not nearly so coarse as is that of paralysis agitans. The distribution is at first unilateral, later general. Other symptoms of frequent occurrence are: (1) spasmodic laughing and crying, and (2) excessive salivation. The former symptom is apt to be constant, and is augmented by emotional disturbances and involuntary movements.

Mental Symptoms.—It has been stated that the mental disturbance in these patients varies directly with the physical symptoms. We should say that to this might be added the words age and sex. In our experience, the female patients with the parkinsonian syndrome are much more apt to show depression, irritability and emotional disturbance than are the male. We also believe that those who develop the syndrome in the twenties show less depression than those who contract the disease earlier or later. We believe that practically every patient with the parkinsonian syndrome displays some mental disturbance. Emotional disturbance we believe to be most common, and next to that exhilaration or depression. These patients are apt to be anxious and harassed. Occasionally, in the more advanced cases, one may encounter confusion or even dementia.

If we analyze the parkinsonian syndrome, several interesting characteristics appear. First is the great

Fig. 6.—Blood vessel in the substantia nigra, showing lymphocytic infiltration of the adventitial space and productiva changes in the intima; Nissl stain; reduced from a photomicrograph with a magnification of 60.

similarity of appearance which all these patients bear to one another. Tabetic and paretic patients have a characteristic appearance, and patients suffering from malignant growths look so much alike that they are

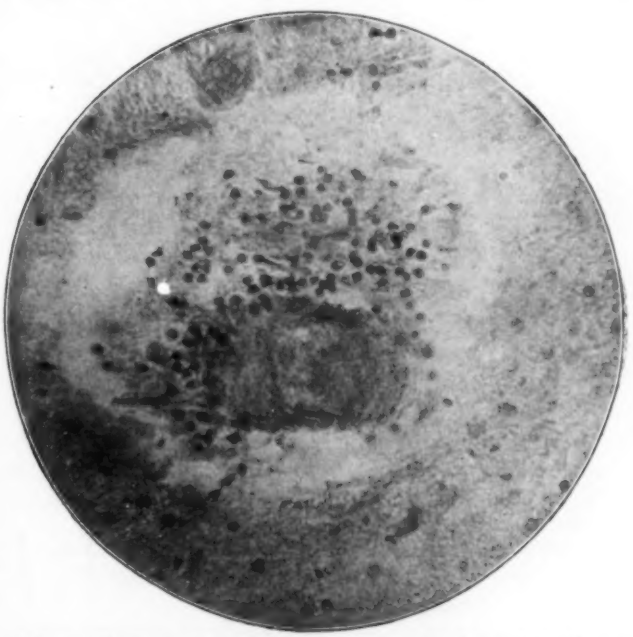

Fig. 7.—Blood vessel in the substantia nigra, showing endarteritis productiva and perivascular infiltration; the vessel is surrounded by an area of organizing tissue composed of both ectodermal (glia) and mesodermal (connective tissue) elements; Nissl stain; reduced from a photomicrograph with a magnification of 250.

called "cachectic," and the same holds true of many other diseases. In no illness, however, does there occur any train of symptoms which so unfailingly duplicates

itself, so constantly occurs in unison, and so unmistakably leaves its stamp, as does the parkinsonian syndrome.

The hand is poised in a characteristic way; the neck is stiff and slightly awry; the face always lacks expression; the corporeal attitude of stooping shoulders and flexed extremities never varies, and rigidity invariably dominates the picture. These patients move slowly, and turn deliberately and festinatingly. In the parkinsonian syndrome, the clinical picture is not only typical but also always typical and identical.

A second characteristic is that, in nine tenths of these cases, the syndrome begins gradually, almost insidiously, and then slowly but invariably advances. We have frequently observed, on returning to the hospital service after an absence of two or three months, that every patient with the parkinsonian syndrome was more rigid, more helpless and more mummy-like.

A third characteristic is that while the syndrome is identical in children and in adults, so far as the physical

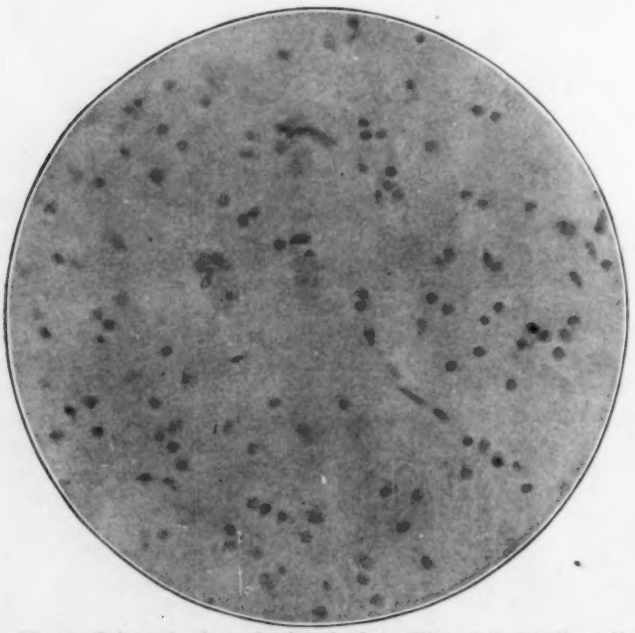

Fig. 8.—Substantia nigra, showing cloudy swelling of the ganglion cells and increase of glia cells, with satellitosis and neuronophagy; Nissl stain; reduced from a photomicrograph with a magnification of 250.

manifestations are concerned, there is a difference in the mental attitude. The very young patients with the parkinsonian syndrome are apt to show changes both in character and in behavior. They develop irritability and emotional instability, symptoms not typical of the adults.

A fourth characteristic is that, unlike any of the other sequelae of encephalitis, the parkinsonian syndrome has nothing about it to suggest that it is a recrudescence of the original malady.

A fifth characteristic is that the female patients with the parkinsonian syndrome, far more than the male, are apt to present mental symptoms.

A sixth characteristic is the mode of death. Several who have followed these cases have made the same observation in regard to the termination. Most of the patients slowly but steadily get worse for a short period. Then the end comes suddenly, and the terminal illness is measured by days. It is usually ushered in with an abrupt rise of temperature, and the whole story ends in three or four days.

This was the experience that we had with our case. The patient was ill four days with a high temperature, and then died.

CONCLUSIONS

1. The majority of observers believe that the lesion in the postencephalitic parkinsonian syndrome is situated in the substantia nigra.
2. A study of our case suggests this.
3. The lesion is widespread and scattered, far more than in paralysis agitans.
4. The reasons the changes in children differ from those in adults can be ascribed to the fact that the nervous and mental systems of these young people are not fully developed but are still in the formative stage, and that, therefore, anything disturbing the nervous system would tend far more to upset its equilibrium than would a similar condition in one whose nervous and mental system had reached maturity.
5. The tenure of life of these patients is brief and may terminate abruptly.

RESIDUA AND SEQUELAE OF EPIDEMIC ENCEPHALITIS *

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An intensive stimulus to biologic inquiry has been given to neuropsychiatry since epidemic encephalitis made evident the need of a recasting of clinical modalities and their interpretations with reference to pathologic findings.

The psychotic manifestations of encephalitis, those that accompany or are a part of the acute illness, are now definitely recognized as of the nature of acute organic reactions; that is to say, are of the type of psychic symptoms produced in the deliria of etiologically toxic basis. In nearly all cases of epidemic encephalitis, there seems to be, at least in some degree, an involvement of the psyche. The form and degree of clouding of the sensorium in more profound cases vary from active deliria to stupor and even profound coma. The so-called occupational delirium, as is well known, is more often seen, and the tendency to "push of talk" is more frequent in epidemic encephalitis than in other infectious diseases. The content of the delirium is of that fragmentary, superficial, variable form, in contrast to that observed in the psychogenic type in which there is a kind of splitting off of a fragment of the personality itself, and in which so-called "trends" and personality traits give more definite character to the reactions.

This study does not deal with the psychic manifestations of acute encephalitis.

While neurologic findings have shown much in common, the psychiatric symptoms and symptom groups do not show the same tendencies to modalities or types. For example, in our studies of a group of cases and

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* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints. A copy of the latter will be sent by the author on receipt of a stamped addressed envelop.

case histories from the service at Bloomingdale Hospital, we found no distinctive group that could be classified as a psychic entity developed during or following an attack of encephalitis and the result of an acute infection, per se. In our experience of cases studied from Bloomingdale, Bellevue and Montefiore hospitals, and those in private practice, the most common characteristic has been disturbances in the emotional field. Abnormal emotional reactions are among the most common psychotic affections following encephalitis. Permanent defects in what is regarded as the strictly intellectual sphere, if such a distinction is to be made, are rare. The changes observed appear as of the nature of alteration in mood and affect, thus influencing character and behavior. The affect shows a variation from a mild hypomania to noisy excitement, on one side, and a light depression to that of extreme depth with suicidal impulses as a complicating feature, on the other. Many of our patients manifested somatic delusions based on hallucinatory experiences or disturbances within the sensory fields. This was especially observed in cases of dysesthesia. With the exception of the peculiar psychic retardation which characterizes the parkinsonian groups, to which we shall presently refer, and the conduct disorders with some personality changes of young subjects, our psychotic cases showed little in common, and the planes of cleavage are not unlike those found in some of our readily classified functional psychoses.

While there appears to be no definite relationship between the nature of the symptoms of the acute stage of the disease and subsequent manifestations, it is a striking fact that, in many cases in which psychotic symptoms appeared later or as true sequelae, there was a history of psychic deviation, often transitory, for a period long preceding the acute constitutional symptoms. In fact, the psychotic sequelae may appear months after the acute illness has passed, and during the course of a prolonged and gradual convalescence. This was observed in several of our Bloomingdale Hospital cases. Indeed, in one of these, after approximately twenty months of convalescence with almost complete recovery, mental symptoms with gradual development of a mild parkinsonian attitude heralded a probably permanent paranoidal transformation, with hallucinatory content of an auditory nature.

The occurrence of classifiable psychoses following encephalitis is rare, both in our experience and as reported in the literature, and it does not appear that mental involvement is observed only in individuals with hereditary predisposition or a psychopathic constitution. From our personal experience, supplemented by the study of the few cases recorded in the literature, an attack of encephalitis does not seem to modify materially the psychic condition of institutional mental cases. Tacquin, for instance, found that encephalitis caused no mental complication of any kind in a patient suffering from frequent periodic manic-depressive attacks, and Lugrè observed a hebephrenic patient showing negativism, stereotypy, etc., on whose mental condition an attack of epidemic encephalitis had not the slightest influence.

As mild psychic residua, we find most commonly some memory defects, and lack of power of concentration and attention, with varying states of depression and a rapid fatigability. Insomnia may be associated or itself remain as an isolated residual.

Inquiry into the relation between psychic and motor retardation might well be directed to a study of the psychomotor defects seen in postencephalitic parkinsonian types.

It is indeed an open question whether or not the apparent apathy of the patient is to be ascribed to the restricted power of attention, and likewise whether or not perception is affected.

The result of the study of sixty cases of postencephalitic motor disorders observed during two years at the Montefiore Hospital in New York, forty of which showed at least fragments of the parkinsonian syndrome, impressed us from their history and progress with some form of apparent mental change. In the majority of the hypokinetic or static types, retardation of psychic response was observed. In our hyperkinetic cases, usually mild, but occasionally violent, unreasonable outbursts of complaint against the environment were periodically noted. The basis for these seemed to be mild persecutory trends and personality changes.

A study of eight hypokinetic cases in our service was made by Miss Grace L. Bebb, a student in the psychologic laboratory at Columbia. Her observations confirmed our own clinically made, namely, that perception is fairly good, but the defect lies apparently within the power of association of ideas; the responses seemed slow because of retarded ideation. In our opinion, the apparent psychic retardation is not of the schizophrenic type, but rather associated, at least in some degree, with the restricted motor mechanisms. Normally, expression of thought is associated with some degree of motor activity, however slight it may be. Not only the emotions, but thought itself is usually attended by some somatic motor expressions; a frown, a sigh, a quiver of the lid, a mild or an emphatic gesture, all these are the motor components of thought. In the myostatic parkinsonian patient, the motor mechanism appears to be locked, and we are confronted with the inquiry whether or not the psyche of the patient is or is not really retarded solely because of loss of power of the motor component. In some cases, this is probably the explanation.

We believe, however, that in many of the parkinsonian relics of encephalitis of the epidemic type, there is a deeper psychic deviation. In the true parkinsonian syndrome of arteriosclerotic origin, even though the patient is physically helpless, he nevertheless retains his morale and his spiritual personality, and, in a way, his social activity. This is in contrast to the postencephalitic patients who may be far less physically restricted. Indeed, many of these patients in their behavior resemble in some respects the dementia praecox type; and much confusion has arisen, and doubtless erroneous conclusions have been reached, because of the apparent identity in symptomatology at times observed in the psychomotor disorder of catatonic nature in dementia praecox and that of the parkinsonian encephalitic lethargy.

Occasionally, the forced encephalitic type of laughter is added to the picture. However, the laughter or the sudden smile in the encephalitic patient bears no relation in psychic origin to that of the praecox. In the former, the smile is purely automatic; it is similar in origin to that of subcortical thalamic-striatal lesions.

PSYCHOTIC RESIDUA IN CHILDREN AND ADOLESCENTS

While we do not deem it prudent at the present limited state of knowledge on the subject to attempt a definite classification of psychotic residua in children and adolescents, we may tentatively assign them for study into the following groups: (1) a parkinsonian

type; that is, the psychic symptoms associated with an akinetic motor form; (2) an excitopsychomotor syndrome; (3) a group showing inversion of the normal sleeping period, usually attended with nocturnal excitement and hallucinatory delirium; (4) a respiratory type, and (5) a true hypomanic form. The two latter are frequently associated. One is tempted to add another group showing as the dominant feature conduct and behavioristic disorders.

The parkinsonian type resembles that observed in adults. It is not infrequently secondary to previous hyperkinetic manifestations. In one of our cases, a boy, aged 8 years, the initial motor manifestations were choreiform movements following a few weeks of profound coma. After several months of hyperkinetic motor symptoms, and, on the part of the psyche, marked conduct disorders, he again passed through a period of lethargy with concomitant development of the Parkinson syndrome and its characteristic psychomotor retardation. He is now, after some four years of illness, absolutely bedridden, the somatic musculature being in a rigid state of static fixation.

In the excitomotor cases, the obtrusive features not infrequently accompanying are the performance of what may be characterized as compulsive acts, a kind of choreic emotional and physical instability, with tics and respiratory phenomena, and the psychic transformation may be so extreme as to transform the young subject into an asocial being, aggressive and assaultive; indeed, even homicidal impulses have been observed.

The hypomanic types, as have been suggested, may be associated with the inversion of the sleep period or, again, may show fairly normal mental reaction during the day, the agitation developing at a definite hour of the night. In one of our private cases, O. L., the maniac state began after midnight. In the group of postencephalitic patients under observation at the psychopathic department at Bellevue Hospital, in the service of Dr. Gregory, our observations of these cases show much the same type of manifestations. Some of these children would show the characteristic "push of talk," cry out suddenly, sing boisterously, attempt to walk about and at times suddenly awaken in an acute transitory hallucinatory delirium. The identical symtoms occurring at almost the same hour each night is commonly referred to in the literature. Few or no neurologic signs may be detected. One sees an analogous condition in some of the strictly neurologic patients. An illustrative case in our series is that of A. P., a patient at the Montefiore Hospital. While absolutely helpless and speechless during the day, rigid mentally and physically, at about midnight there is almost complete relaxation, enabling the patient voluntarily to go about the ward, showing much activity and partaking freely of food. This striking diurnal transformation suggests a possible metabolic or endocrinic basis.

Invasion of the sexual sphere is frequently seen in children as well as in adults, and the change in the attitude of the patient as to sexual acts, normal and perverse, is sometimes astounding. Preposterous indulgences and, in younger children, abnormal erotic preoccupation and a peculiar tendency to propaganda by suggestion are frequently seen. In the adolescent and in later life, a tendency to exhibitionism and to intemperate and uninhibited sexual impulses sometimes stand out in striking contrast to the previously decorous behavior. This peculiar tendency to sexual deviation is likewise observed in adults; in them the delusions are frequently associated with sexual hallucinations. For example, in one of our Bloomingdale Hospital patients, J. E. F., a man of 46, some eighteen months following the acute illness, there developed paranoidal trends particularly regarding his wife. Although oriented in all spheres and with no memory impairment, insight was entirely lacking. His mental status was essentially that of an atypical depression with some agitation. In spontaneous speech he was underproductive, but in discourse he readily furnished a number of odd somatic delusions very fantastic in color. In the first few weeks of his stay at the hospital, his behavior was extremely unusual; he was untidy; he defecated on the floor of his room and in the waste basket. When taken to task, he elaborated a story woven about the increased flow of saliva (part of his slight fragmentary parkinsonian syndrome). For example, asked: "Why do you spit so much?" he replied: "To get rid of the horrid things the attendants put in my mouth at night—cat dirt and things like that." Asked why he soiled the floor of his room instead of going to the toilet, he replied: "To find the kittens and puppies which I pass in the morning; the attendants put semen of cats and dogs in my mouth during the night." There is a suggestion of homosexuality in the type of his hallucinations and delusions.

A structural and physiologic basis for these phenomena is suggested by the frequency of reported cases in which premature puberty with rapid development of physical sexual characteristics is observed. However, in one of our cases, O. L., previously referred to, there was, with the development of a Froelich syndrome with some 60 pounds (27 kg.) gain in weight, an apparent retardation of the physical sexual development. This young boy displayed an interest in simple toys and amusements of very much younger children. The acute attack of encephalitis, as evidenced by the observation of an intelligent mother, confirmed in its accuracy by the family physician, stood in definite relation to the abnormal turn in the boy's development.

Another case of interest in this connection was that of H. R., a young man of excellent family and personal history. The abnormal sexual behavior developed several years after complete recovery from the acute illness. We are indebted to Dr. L. A. Miller of Toledo for some additional light on the history of this case. Concomitant with the psychotic behavior, there developed a very mild degree of parkinsonian attitude. Dr. Miller informed us that the patient's speech and acts were of the most lascivious nature; he was "as lecherous as a monkey," and this form of conduct was continuous, dominant and compelling. Otherwise the boy was normal intellectually and morally. There were no hallucinations or insane delusions, no memory defects and no emotional instability. Like the majority of cases of this kind, the patient had a clear insight and would admit the correctness of expostulations regarding his conduct, but seemingly failed in will and in resolution to inhibit impulses and desires. There also seemed absent a proper, reasonable spontaneity in emotional reaction to the situation.

Another patient, J. H. L., aged 22, first seen, as was the last one referred to, in office consultation, and then referred to Bloomingdale Hospital, showed pronounced changes in the moral sphere with character and conduct alteration, within six months subsequent to an attack of acute encephalitis of moderate severity, when he was 16 years of age. Though formerly a stable, well behaved, intellectual boy, he became headstrong, disobedient and utterly indifferent to the pleadings of his

parents, to whom, before his illness, he had been affectionate and obedient. The youth became lazy and careless, indifferent to responsibilities and unmindful of the property rights of others. He took articles, quite irrespective of their intrinsic value, at times disposing of them to his own advantage, at others, practically making no use of them. This patient had fallen into the hands of justice on several occasions, but the nature of his malady was not recognized. Noting the intellectual superiority of the young man, so strongly at variance with the moral obliquity, the family physician brought the boy for consultation. A conspicuous feature was the attitude of the patient and his critique in a discussion of the situation. He showed the characteristic superficial, psychic reaction, with a striking defect in the depth of conscious appreciation. Cases of this character present sociological problems that are of supreme interest and of momentous importance. Indeed, from the standpoint of the physician, the criminologist and those concerned with the well being of society at large, the whole problem of behavioristic disturbances after encephalitis in early life and the influence of organic pathologic changes upon character formation becomes of transcendant importance. After a comprehensive survey of the situation, we are moved to the conclusion that a correlation of psychologic study with pathologic findings may throw considerable light on some of the tragedies that suggest a cleavage between emotion and intellect. It is not open to dispute that the interplay of emotion and intellect is a problem of psychologic variation in the individual.

COMMENT

Human intelligence, comprehending the activity of the mind as a whole, includes the capacity of reception, assimilation and criticism. It is biologically dependent in large measure on the gray mantle of the brain. The emotions, strictly speaking, are referred for their physical components to parts of the subcortical level, thalamus and corpus striatum, and are probably associated with both conditional and unconditional sensorimotor reflexes. When one considers the graduated disturbances of intellect and emotions that have appeared so strangely associated in postencephalitis and have affected attention, the higher sensations and the higher psychic combination processes, including those of critical judgment, imagination and creative power, it is a fair ground for assumption that all these faculties are associated with the same brain segments that are functionally the seat of emotional reaction.

The further painstaking investigation of encephalitic patients may yet give us information as to the function of the subcortical brain segments, and furnish valuable biologic data with respect to the emotions and the highest creative processes.

The strictly neurologic aspects of our presentation are summarized in a brief consideration of some unusual types of residua and sequelae of the acute phase.

From about eighty postencephalitic cases in the neurologic service at the Montefiore Hospital, we have selected twenty-one of especial interest. Some 2,000 feet of moving picture film, with scenes photographed at different periods, graphically present progressive phases of the motor disturbances.

A study of the static, kinetic and synergistic mechanisms affected in encephalitis and in such classified entities as chorea, dystonia musculorum, striatal syndromes, paralysis agitans and multiple sclerosis not only indicates that the damaged nerve centers are the same anatomically, but also suggests that the acute pathologic condition in the one case terminates in a histopathologic process which is the same in the chronic stages of encephalitis as in the conditions that obtain in the syndromes of older nomenclature.

Do the symptoms in the acute attack enable us to prognosticate with reasonable certainty the future course of the disease?

A review of histories and observations does not suggest a more or less constant relationship between the symptoms of the acute illness and the development later of a particular type of motor deformity; that is to say, the nature of the acute manifestations does not enable us to approach definite judgment of the subsequent behavior. For example, the final static posture, with its reduction of psychophysical activity, may be preceded in the acute or subacute phase of the malady by a period in which the hyperkinetic mechanism produces an original posture with dominant choreiform or dystonic movements. Naturally, a graver prognosis in the acute stage is presented when there is early bulbar involvement. As a rule, the outlook for recovery is better in the hyperkinetic than in the early static types with their parkinsonian fragments.

Generally speaking, only years of observation will enable us to learn how far and in what direction will be the trend of progress of residual sequelae of epidemic encephalitis.

At present, the resulting invalidism as we see it, both in private practice and in institutions, has created problems for the medical mind and new aspects, no less perplexing, of a social and economic nature.

116 West Fifty-Ninth Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. HUNT AND CORNWALL, AND GOODHART AND COTTRELL

DR. KARL PETREN, Lund, Sweden: I should like to emphasize two points. One is the existence of cases in which the acute stage of the disease occurred as long as three years before. Apparently the patients have since been quite well, but are now showing the characteristic parkinsonian syndrome. In these cases we must conclude that epidemic encephalitis is a chronic disease with an acute onset, perhaps with acute exacerbations, but very often a chronic disease. It is impossible to explain the disease as being acute in these cases. This condition can be brought about only by chronic changes in the central nervous system which have been developing since the time of the acute attack. Netter has pointed out that the ordinary Parkinson's disease, when apparently coming as a purely chronic affection, may have its inception in epidemic encephalitis not previously recognized. I cannot at this time give a definite opinion in regard to this conception of the nature of the ordinary chronic Parkinson's disease, but cannot deny the possibility of it. Yesterday Dr. Rothstein showed me some specimens from a case of epidemic encephalitis with atrophy of the cells, both of the pallidum and the substantia nigra. On the other hand, Rothstein examined an ordinary case of chronic Parkinson's disease in which nothing indicated that the onset came through an epidemic encephalitis. However, in that case he has also found quite the same condition: namely, atrophy both of the cells of the pallidum and of the substantia nigra. Consequently, there is the true parkinsonian syndrome which comes on after epidemic encephalitis, presenting the same clinical picture as the ordinary Parkinson's disease, and, in addition, the two have similar anatomic alterations in the brain. I believe it may be said that this strongly favors the idea that this is the same disease, although not previously recognized as epidemic encephalitis in the history of these cases. From a study of epidemic encephalitis, I certainly cannot believe that it is a

new disease. We have made some observations in the most northern part of Sweden which strongly point to this conclusion. Here epidemic encephalitis appeared as a true epidemic disease, and was observed to spread from house to house, which is not seen in other parts of the world where the population is denser. It would seem that under more crowded conditions a certain immunity has been developed by reason of which the disease does not assume true epidemic characteristics. In the same section of Sweden, similar observations were made in regard to poliomyelitis. Another point I should like to emphasize is the treatment of cases of the parkinsonian type following epidemic encephalitis. I have tried mercurial ointment, but have no positive opinion of it. In some cases it produced a good effect. I must, however, strongly recommend treatment through movements and exercise—movements that are made after commands and often repeated, active movements that are, if necessary, supported through passive movements.

DR. MEYER SOLOMON, Chicago: These two papers are very interesting in their relation to the problem of the mechanism and physiology of the emotions, of the influence of the mind on the body and of the body on the mind. The paper by Goodhart and Cottrell particularly brings up the problem of the influence of the body on the mind. Looking at the paper from that angle (which is its great contribution), these questions arise: First, are the psychotic manifestations in these conditions initiated by direct physiologic reflexes from the motor centers to the emotional and the ideational centers? Second, are they due to the fact that, owing to the peculiar conditions existing, there is very great physiologic tension in the basal ganglions and in the cortex, with nervous and mental tension resulting, and leading to the explosive discharge of impulses, emotions and ideas without proper self-control? Fatigue and toxic infectious factors should be considered. Third, in what degree do we have here direct ideational, emotional and, in general, behavior reactions to the situation, the individual feeling the handicap of his particular defect, with certain definite psychogenic behavior reactions? At least these three groups of reactions must be considered. During the adolescent period we have something of a similar problem, due not to organic destructive conditions, but to physiologic upheavals within the body. We must consider the influence of the body on the mind along at least these three lines. The fatigue of the basal ganglions and of the cortex, also due to the terrific strain and stress that these portions of the nervous system undergo resulting from the peculiar attitudes and characteristic movements, is a very great factor. The result is an overexcitable condition with resulting nervous and mental symptoms, with emotional tendencies and impulsive ideas and with consequent lack of self-control. I wonder what Dr. Goodhart thinks of the possible mechanisms or causes for the origin of the psychotic manifestations he has mentioned. The answers to these questions will have very much to do with the understanding of the mechanism and physiology of the influence of body on mind and of mind on body and just what happens during emotional stress. Much work along this line is now being done.

DR. WILLIAM RAVINE, Cincinnati: We have encountered in Cincinnati and in every other large community persons with the residua and sequelae of epidemic encephalitis. We have seen the fixed and immobile face, the emotional outbursts, the slight involvement of the pupil of the eye and of the external recti. But the striking thing, both in juvenile court cases and in school, has been the sudden outbreak of behavior problems. We have a very troublesome boy, aged 12, who had been given a mental test about six months before he was taken with the acute illness and was of superior intelligence. In this acute illness he had fever for a number of days and then went into coma. After coming out of coma he was sent to a convalescent home. In a couple of months he returned to school. The teachers were unable to keep him in classes, and a very careful teacher gave this history: The boy would suddenly make an outcry or strike a boy, or would make funny faces. He was brought into court and later put into the psychopathic ward for observation. Then the complaint came in that he had been stealing and running away from home, something he had never done before. So here was a boy who was physically and mentally normal prior to the attack of epidemic encephalitis. There were absolutely no findings except in the emotional and behavior sphere. In another boy there was only one organic finding, a weakness in the left side of the face and in the external recti. All tests were made, including Wassermann and urinalysis. We now have two other boys under observation, suspecting the sequelae and residua of epidemic encephalitis, so well brought out by Dr. Goodhart. In juvenile court work I believe we must always be on the lookout for the after-effects of so-called lethargic encephalitis.

DR. S. PHILIP GOODHART, New York: As to the treatment referred to by Dr. Petren, at the Montefiore Hospital in New York, we have tried all forms of exercises for the purpose of improving the patient's ability to perform automatic normal associated movements. This mechanism, with its apparent automatic memory, seems to be the great upset in this disease. We shall, however, continue gymnastics and reeducation, but I have very little faith in the results. The treatment of both the static and the kinetic types is, up to the present, purely symptomatic and according to the individual experience of the physician. There are no specifics.

Clinical Notes, Suggestions, and New Instruments

ANAPHYLACTIC SHOCK FOLLOWING USE OF AN ORGANIC COAGULANT *

BERNARD E. SAYRE, M.D., CHICAGO

A number of cases of severe anaphylaxis and even death following injections of diphtheria antitoxin have been reported, but nowhere in the literature, as far as could be ascertained, is there mention of a case similar to the following, which occurred in Dr. H. M. Richter's service at the Mount Sinai Hospital of Chicago.

REPORT OF CASE

History.—S., a business man, aged 30, single, was referred for operation because of a severely toxic goiter, which began to trouble him six months before his entrance to hospital. His complaint was nervousness, tremor, loss in weight and strength, and insomnia. A basal metabolism test taken before his entrance to the hospital was plus 85. After three weeks on compound solution of iodin, his metabolism dropped to plus 40.

There was no history of any severe illness except the usual childhood diseases. The patient never had diphtheria, nor had he ever had an antitoxin injection. He was not sensitive to horses, he had no asthmatic attacks, and there was no history of asthma in the family. He said he had no venereal disease, and did not use alcohol. Physical examination was essentially negative except for tachycardia, tremor and enlargement of the thyroid gland.

Laboratory Findings.—The urine and blood were normal. The Wassermann reaction was negative. The blood urea was 29 mg. per hundred cubic centimeters. The blood calcium was 9.8 mg. per hundred cubic centimeters of serum, and the blood sugar, 95 mg. per hundred cubic centimeters.

Operative Procedure.—The patient was anesthetized by nitrous oxid and oxygen gas. This was preceded by a local injection of 0.25 per cent. procain solution without any epinephrin. The thyroid gland was isolated, the lower and upper poles were clamped, and the gland was removed as completely as possible. All bleeders were then ligated, but a continual oozing on the left side of the trachea could not be stopped. As the bleeding was very close to the recurrent laryngeal nerve and ligation not practical because of danger of injury to the nerve, an organic blood coagulant (coagulose) was applied to the bleeding surface, the area packed with gauze, and the incision sutured in the usual manner. The blood pressure before operation was 160 systolic and 80

* From Dr. H. M. Richter's Service, Mount Sinai Hospital of Chicago.

diastolic. During operation, it rose to 180 systolic and 90 diastolic, and at the close of the operation the blood pressure had dropped to 165 systolic and 85 diastolic, with a pulse of 120. The patient was breathing well and appeared in good condition.

About fifteen minutes following the application of the blood coagulant, the patient suddenly became cyanotic, breathing with great difficulty and inspiring in short gasps. Foam appeared at the mouth. Within a minute or so, breathing ceased. The heart became rapid and the pulse somewhat weak, but continued to beat regularly.

Artificial respiration was resorted to; stimulants were given hypodermically; oxygen was administered, and breathing was finally resumed. Cyanosis lasted for ten minutes. The patient remained unconscious for two hours afterward, although ether was not given at any time during the operation, and the gas anesthetic had been stopped fifteen minutes previous to the onset of dyspnea.

Sumner[1] states that severe anaphylaxis is a rare occurrence after a first injection of serum. Anaphylactic shock is still rarer and fatal anaphylaxis practically unknown. Sometimes anaphylactic shock may occur after primary injection of serums in exophthalmic goiter, but is very rare.

SUMMARY

This patient apparently suffered a severe anaphylactic reaction following a single application of a proprietary organic coagulant which is a concentrated horse serum in powder form.

3357 West Roosevelt Road.

CASE OF HUMAN INFESTATION BY LARVAE OF THE FLY ERISTALIS TENEX

WILLIAM C. PUMPELLY, M.D., MACON, GA.

A white man, aged 30, a contractor and builder, complained of weakness and constipation. His family history was unimportant, and his past history seemed to have no bearing on the complaint. He had had several attacks of tonsillitis until his tonsils were removed, five years before. He had pleurisy when 19 years of age, with a good convalescence, and he had had pneumonia, malaria and typhoid fever, all of which had occurred more than ten years before the present illness. Nine years before, the appendix had been removed. He had not had previous attacks of appendicitis. The present complaint began five years before with constipation, pain in the legs, and at times spells of weakness. At intervals, he had severe attacks of constipation. A year before he saw me, he discovered that there were worms in the bowel movements, and from then on he found them in nearly every movement. They were large enough to be easily seen and seemed to be of two different sizes, and the larger worms had tails. There were usually many worms in each movement, and they moved rapidly, especially the larger worms with tails. He took several kinds of worm medicine without effect. For two weeks before I saw him he had severe malaise, with poor appetite, headache and occasional nausea. The bowels moved only when he took a laxative. He urinated once during the night.

The patient was well developed and nourished, was 5 feet, 10 inches (179 cm.) tall, and weighed 178 pounds (81 kg.). The heart apex was in normal position and the blood pressure was 128 systolic and 90 diastolic. Nothing unusual was found except tenderness on palpation along the course of the colon, which was more marked along the course of the descending colon. A gastro-intestinal roentgen-ray study revealed no abnormality, and the laboratory reports of blood and urine showed nothing unusual except a slight trace of albumin and a few hyaline casts in the urine. The blood count was normal; leukocytes, 6,200; neutrophils, 53 per cent.; lymphocytes, 44 per cent.; eosinophils, 3 per cent. In the feces were many actively motile worms; they were of two sizes: the smaller worms were from 0.5 to 0.75 cm. in length, and the larger ones were about 0.75 to 1 cm. in length and had tails of about equal length. The worms were white, and the tails of the larger worms were of a darker, muddy color. The smaller worms were thought to be immature forms. A portion of the feces was centrifugalized and examined for ova; specimens were taken from the sediment, the supernatant liquid and the scum, but no ova were recognized. A specimen of the stool containing the worms was sent to the U. S. Army Medical Museum for identification. The patient was given 40 drops of carbon tetrachlorid, and was told not to use the same drinking water, or to purify the water with iron sulphate. He had been using water from a dug well near his country home. After this, he was unable to find worms in the stools. The last of August, he was given a second dose of carbon tetrachlorid but no worms were passed; and he told me a year later, in August, 1924, that he had not seen any worms since.

June 11, I received from Major James F. Coupal, the curator of the U. S. Army Medical Museum, the report that Dr. C. S. Ludlow, the entomologist in charge of the entomologic department, had reported that the worms were the larvae of the fly *Eristalis tenex*, commonly known as the rat tailed larva, which are found in foul water; that is their natural breeding place; but they may be found in wells, and occasionally get into the human bowel, where, if numerous, they might cause trouble.

July 17, 1923, I received from the Army Medical Museum this additional information: The larva is occasionally recovered in the living state from the human feces, and when present in some numbers may cause symptoms of intestinal pains, vertigo, nausea, vomiting, constipation, headache, nervousness, weakness and emaciation. Only about twelve cases are on record, but it is believed that this infestation occurs more often than has been thought. The larvae breed in decaying vegetable matter, manure, soft mud impregnated with decaying vegetable matter, in ditches containing sewage, and in contaminated wells or springs. The ova may be ingested with watercress grown in impure water. It is believed that these larvae are never present if the water is perfectly clean and pure, and their presence is considered as demonstrating that the water is unfit to drink. As one of the natural habitats of these larvae is sewers, there is nothing incongruous in the ova or young larvae developing in the intestinal contents. The six specimens sent were evidently of different ages, so that repeated infestation is indicated. Naturally, no vermifuge will be of much service. To insure a clean drinking water is necessary, and as no multiplication of the larvae can take place, they should gradually disappear.[1]

Grand Building.

1. Sumner, F. W.: Brit. M. J. **1**: 465 (March 17) 1923.

1. Insect Life, Part 2, p. 261; Part 3, p. 22. Tr. Roy. Soc. Med., Path. Sect., March 28, 1908, p. 934. Austin, E. E.: British Flies Which Cause Myiasis in Man, London, Darling & Son, 1912. McCampbell, E. F., and Corper, H. J.: Myiasis Intestinalis Due to Infection with Three Species of Dipterous Larvae, J. A. M. A. **53**: 1160 (Oct. 9) 1909.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

DIPHTHERIA TOXIN-ANTITOXIN MIXTURE (See New and Nonofficial Remedies, 1924, p. 298).

Gilliland Laboratories, Ambler, Pa.

Diphtheria Toxin-Antitoxin Mixture, 0.1 L +.—Each cubic centimeter represents 0.1 L + dose of diphtheria toxin neutralized with the required amount of diphtheria antitoxin. Marketed in packages of 3 ampules, each ampule containing 1 Cc.; in packages of 30 ampules, each ampule containing 1 Cc.; in packages of 3 syringes, each syringe containing 1 Cc., and in ampules containing, respectively, 10 Cc., 20 Cc. and 30 Cc.

TETRABROMPHENOLPHTHALEIN SODIUM (See JOURNAL A. M. A., December 27, 1924, p. 2095).

Mallinckrodt Tetrabromphenolphthalein Sodium Salt.—A brand of tetrabromphenolphthalein sodium-N. N. R.

Manufactured by the Mallinckrodt Chemical Works, St. Louis. No U. S. patent or trademark.

Mallinckrodt Tetrabromphenolphthalein Sodium Salt, 5 Gm. Ampules.

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SATURDAY, JANUARY 3, 1925

THE PREVENTION OF CRIME

A recent estimate of the annual cost of crime in the United States places the total at $10,000,000,000. This means an annual charge to each inhabitant of approximately $85. The estimate includes every possible charge, direct and indirect, that can be laid to the door of crime; the direct cost—losses paid by individuals, firms and corporations—was estimated at $3,000,000,000 annually.[1] To this economic demand for measures directed toward the prevention of crime must be added the humanitarian appeal of the suffering and hardships it causes, the magnitude of which cannot be expressed in dollars and cents. But, it may be asked, what has this to do especially with physicians and the practice of medicine? The answer to this question has led to much controversy and misunderstanding, largely as the result of misguided statements and ill founded speculations. The problem of the relation of medicine to crime has close kinship with that, now fortunately settled, concerning the medical nature of mental disease. Until comparatively recent times, mental diseases were regarded as visitations of the devil, amenable to treatment only by exorcism or divine intervention. Today we are beginning to realize, largely as the outcome of the study of mental disorders, that human behavior is not merely a question of innate goodness or badness, but is the outcome of many forces, some of them dependent on structural anomalies in the bodily organs, others on the training and experience of the individual during his progress from infancy to maturity.

Crime or delinquency is essentially a mode of behavior, and is determined by the same forces that bring about socially permissible or desirable behavior. As such it is open to the same methods of study, diagnosis and prognosis as are, for instance, the insanities and psychoneuroses. This is not intended to imply, as has been affirmed in all seriousness by some enthusiasts, that insanity and crime are synonymous terms, nor does it mean that the habitual criminal has necessarily some mental disease, or that the treatment to be adopted for his cure should conform with that applied in the insanities.

To a large extent, society has limited itself in dealing with crime to the application of punishment after an offense has been committed. It may, for the sake of argument, be conceded that, except at times of intense popular indignation over the commitment of some particularly heinous atrocity, the punishment is applied mainly as a deterrent to others rather than in a spirit of revenge. To this extent only can punishment be regarded as a means of prevention. Whether and to what extent it accomplishes anything in this direction is difficult to determine; but there can be no question that, even when the most rigid, swift and certain penalties are inflicted, crime is still rampant and extremely expensive. Regarded as a means of treatment for the criminal, punishment has not proved a brilliant success. The question of punishment or not is, however, primarily a problem for society rather than for the physician. The latter is concerned more with the earnest, nonpartisan determination of the causes for the antisocial behavior, their prevention and the treatment of the criminal for the purpose of cure. Probably every one will concede that the protection of society must be the fundamental aim, and this cannot be set aside for any sentimental feeling of sympathy for the offenders. Responsibility and penalty must be estimated by society; they are not medical questions; but it is the duty of the physician to bring home the responsibility of society for permitting the commitment of crime. It is also the function of the physician to lay a foundation on which society can build rational measures for preventing crime.

Many constitutional legal difficulties arise immediately when schemes are proposed for dealing with potential criminals. In the main, these difficulties depend on our ability or its lack to recognize with certainty and to define in precise terms the bodily and mental characteristics that portend antisocial behavior. If these requisites can be met clearly, the means for dealing with them can unquestionably be formulated in an entirely satisfactory legal manner. Though considerable advances have been made in the medical understanding of behavior, there is still too much that is speculative and ill defined to permit any general acceptance of available facts as a basis for legislation. The greatest need at the present time is for research into the nature and causes of delinquency. This is strictly a medical problem, though it will also reach largely into the fields of psychology, sociology, biology and allied sciences. Many agencies engaged in such efforts already exist, but for the most part they are poorly supported and meagerly equipped. There is urgent need for closer cooperation and coordination if facts are to be established and speculative hypotheses, which can lead to nothing but distrust and delay in the adoption of a rational procedure, are to be avoided.

1. Chamberlin, H. B.: The Cost of Crime in Chicago, Motor View, September, 1924.

The figures quoted in the opening paragraph, even with a large allowance for overzealous computation, are surely large enough to justify the expenditure of even large sums for research into methods of prevention. As a strictly business proposition, such a proposal should receive the heartiest endorsement and support from official as well as from voluntary agencies of society.

INOSITURIA

Clinical literature carries records of well authenticated cases in which noteworthy amounts of inositol, ranging sometimes from 15 to 20 gm. daily, have been excreted in the urine of man. This substance, more commonly referred to as inosite, was once thought to be a carbohydrate because its empiric formula, $C_6H_{12}O_6$, corresponds closely with that of familiar sugars. It is now known, however, to be a member of the cyclose group with the formula of a hexahydrocyclohexane, $C_6H_6(OH)_6$, which appears to be a constituent of both animal and vegetable tissues. The plant component known as phytin is the salt of a compound of inositol and phosphoric acid. In view of the wide distribution of such substances and their presumable inclusion in many articles of diet, the appearance of inositol in animal tissues and excretions has naturally been attributed to the dietary sources as its precursor.

This hypothesis has been rendered less tenable, however, by the observation that the cyclose substance is readily attacked and destroyed by certain common alimentary bacteria, so that the chances of its survival for absorption intact from the bowel are thereby lessened. Needham [1] has made the significant observation in Hopkins' laboratory at the University of Cambridge that there is no change in the amount of free inositol contained in the tissues of the rat after eight months on an inositol-free diet. Polyuria and inosituria, artificially induced in rats by feeding them on a salt diet over a period of 110 days, caused a lasting and vigorous excretion of inositol, without any diminution in their body content, although the diet was inositol free. This is presumptive evidence that the animal body possesses the power of synthesizing inositol.

Clinically, inosituria has been recorded in connection with certain cases of nephritis, diabetes mellitus, and chronic polyuria or diabetes insipidus. In the latter two instances, polyuria is an outstanding feature, but by no means all cases are inosituric. Needham believes that there can be no doubt that inosituria is associated with polyuria of whatever origin, and that its connection with the two forms of diabetes is accidental. The interest in inositol has waned for some time, largely because the analytic methods for estimating it quantitatively in biologic fluids and tissues have been unsatisfactory. With the presentation of evidence that it is not merely stored by accident but may really be produced in the body, interest is likely to be renewed in a substance that has almost disappeared from notice in the textbooks of today. The fact that synthesis of inositol does take place is, as Needham points out, no proof that inositol has any metabolic significance, for it might owe its existence to the chance presence of its precursors. But, he adds, substances that possess physiologic significance are surely more likely to be synthesized by the animal body than substances that have no part to play in metabolism.

1. Needham, J.: Studies on Inositol, II, The Synthesis of Inositol in the Animal Body, Biochem. J. **18**: 891, 1924.

THE BACTERIOPHAGE

The assumption by d'Herelle [1] of an ultramicroscopic filtrable parasite, *Bacteriophagum intestinale*, as the cause of the "clearing" or lysis of certain bacterial cultures after their inoculation with seemingly sterile filtrates of dysentery stools has been a special stimulus to the study of this reaction. Articles under such titles as bacteriolysants, transmissible lysin, the d'Herelle or the Twort-d'Herelle phenomenon, and the bacteriophage have since described lytic reactions obtained not only from filtrates of stools, but also from river water, pus, urine, exudates and tissue extracts, old cultures, normal cultures or their sensitive variants, and other sources. The staphylococcus and other organisms as well as the members of the typhoid-dysentery-coli group have been found susceptible to lysis with a variable degree of specificity and with the occurrence in each group of resistant strains. Many investigators find no evidence for a living bacteriophage, yet none can state that the theory is actually disproved.

The criteria for this test are: the lysis of the culture; the transmissibility of this quality indefinitely through filtrates and new cultures, usually with a marked increase of strength; and the appearance in agar subcultures of irregular "moth-eaten" colonies with lytic areas. The underlying factors are the "something" that passes the porcelain filter, and the young, rapidly multiplying bacteria in slightly alkaline medium, which seems essential for an optimal reaction.

The lysis so far as can be shown is a mere dissolution, or "plasmolysis," and not a proteolysis of the bacteria. Lysis may appear complete, but usually there develop or persist resistant forms that produce in the agar subcultures regular colonies often more mucoid than those of the original cultures. The survival of such forms, in vivo, d'Herelle considers a feature in the development of carriers. The adsorption of the principle by dead organisms, the protection of the bacteria by colloids such as gelatin, but not by lecithin or cholesterol, the inhibition by antilytic serums whose action may be a physical protection of the organism or a toxin-antitoxin type of reaction are among the significant studies. Distinction is evidently to be made

1. D'Herelle: The Bacteriophage: Its Rôle in Immunity, 1922.

between the effects on the combined culture and filtrate, and the effects produced by the same treatment on the filtrate alone, for, while antiseptics or any substances unfavorable to the rapid multiplication of the culture itself decrease or wholly prevent the reaction, the subjection of the filtrate alone to a temperature of 60, 65 or 70 C., varying with different preparations, to evaporation, to ether extraction, and to alcohol, acetone or ammonium sulphate precipitation does not destroy its activity. In fact, some of the latter methods have been used for the isolation and concentration of the bacteriophage.[2]

Opposing theories concerning the nature of this transmissible lysin have been presented. Kabeshima early suggested an autolytic enzyme born of a proferment in the bacteria themselves, activated by some organic secretion, and perpetuated by the products of autolysis. Bordet and Ciuca,[3] who obtained their bacteriophage from the leukocytic exudate produced in guinea-pigs by the intraperitoneal injection of *Bacterium coli*, considered the principle an hereditary tendency to autolysis acquired by certain cultures in adverse conditions. After a thorough review and study, Davison [4] emphasized the fact of passage only through living cultures, and the probability of some metabolic products favoring the growth of sensitive lysogenic organisms which are subsequently dissolved with coincident release of the active substance. Arkwright recalls that possibly the lytic principle itself is not transmitted but that the stimulus, whatever its nature, may provoke in each new culture variation and defective growth, with autolysis only as a secondary result.

Therapeutically, active filtrates have been used (orally, subcutaneously and, in the case of furunculosis, locally) with improvement of symptoms according to the experience of some authors. Da Costa Cruz names it the best treatment for dysentery, admitting, however, certain failures and the need of antitoxic serum and other additional measures. Whatever explanation is offered for the response, it may or may not depend on the nature of the bacteriophage reaction itself.

The trend of opinion seems away from an acceptance of the rôle of a living parasite toward further study of the substances and conditions that modify otherwise normal cultures in the direction of lysis. Is it an enzyme reaction, or is it a change in the physicochemical balance of the physiologically young bacteria, with increased permeability of the membranes due to an actual union with the unknown substance? Twort, in his studies of 1915, suggested that this phenomenon is possibly of wide biologic significance, even pertaining to the abnormal growth of tumors.

2. Kuttner, A. G.: J. Bacteriol. **8**: 49, 1923.
3. Bordet and Ciuca: Compt. rend. Soc. de biol. **83**: 1293, 1296, 1920; **84**: 276, 745, 1921.
4. Davison, W. C.: J. Bacteriol. **7**: 475 (Sept.) 1922.

MEDICAL EDUCATION AND THE SUPPLY OF RURAL PHYSICIANS

The discussions of recent years regarding the unsatisfactory distribution of physicians in the United States—particularly the supply in rural areas—have evoked various hypotheses. The cause and cure most frequently and emphatically referred to is the changing scope of medical education. It is asserted, on the one hand, that too few physicians are being trained under the current régime; and, on the other hand, that even were their numbers adequate, the present-day medical graduates would refuse to locate in or near the rural areas. The costliness in time and money, the location of schools in the larger cities, and the alleged emphasis on the importance of elaborate equipment and facilities in the diagnosis and treatment of disease are factors of medical education and practice frequently mentioned.

An elaborate study of the problems at issue and the contentions of those interested in them has just been completed by officers of the General Education Board as an aid to its considerations of the development of American medical education.[1] Their primary aim has been to ascertain such facts as might either substantiate or disprove the varied views. The details of the report represent a valuable contribution to the history and interpretation of medical conditions in this country, and are worthy of careful study. It is argued that a youth contemplating the study of medicine considers, not only the length and cost of the course, but also the prospect of establishing himself with reasonable promptness after graduation. If attractive outlooks do not exist, the mere reduction of requirements will do little to attract students; if they do exist, the addition of a year or two to the course will discourage few students. The report points out that so far as a reduction in entrance or graduation requirements would actually produce an increase in the number of physicians, the extent to which an increase would result in taking up by physicians of rural locations now vacant is problematic. It adds that what the plan contemplates, when reduced to its simplest terms, is nothing more or less than that the supply of physicians should be increased to a point at which competition in the towns will be so severe that a larger proportion of physicians than at present will be compelled to seek a living, however meager, in the country, and the resulting increased competition in the country will force physicians into locations now vacant, despite the unattractiveness and unprofitableness of those locations, or will force additional physicians into locations now supporting only one or two physicians. The investigators conclude that merely to state the plan in these terms is sufficient to condemn it. Increase of numbers will not compel a physician to live in a place where a living cannot be made.

1. Mayers, L., and Harrison, L. V.: The Distribution of Physicians in the United States, General Education Board, New York, 1924.

It is sometimes contended that the content and method of the present medical course are responsible for the apparent aversion of the recent graduate to rural practice. We are told that "he feels lost when out of reach of the facilities that he has been taught to use." If this were a fact tending to produce aversion to rural locations, the remedy would lie in a change in medical teaching rather than a reduction in the length of the course. Indeed, it has been argued, and not without some propriety, that the greater responsibilities necessarily assumed by the rural physician, as a result of the inaccessibility of hospitals and specialists, render even the present extended medical course inadequate for the proper training of a rural practitioner. The upshot of the careful investigation made by the experts of the General Education Board, so far as the problem of the vacant rural location is concerned, is thus formulated in summary:

> To one taking a broad view of all factors, it seems reasonably clear that neither changes in the medical school constituency nor changes in the mental attitude of the graduate induced by the current methods of instruction have been more than a secondary influence in leading recent graduates to avoid rural locations, and that the primary factors have been substantially the same as in the case of the practitioners of longer standing—the increasingly superior financial, social and professional advantages of the larger places; factors which have appealed with equal force to all types of practitioners, including those who received their medical education under a régime far removed from that of today.

The chief function of the report would appear to be its concrete statement of the conditions existing and its provision of an adequate analysis of the present distribution of medical practitioners. It provides no remedy that will strike those most conversant with the problem as fully meeting the indications.

Current Comment

BOW-LEGS AND RICKETS

Few diseases can rival rickets in the number of conspicuous physical defects that have been ascribed to its ravages. In one part of the anatomy there may be bowed legs, knock knees and saber legs; elsewhere the manifestations are dubbed with the infelicitous designations of rickety rosary, pigeon breast, square head and pot belly—a strange medley of items that find their most exaggerated expression in misshapen dwarfs. As if it were unfair that any single disease should bear responsibility for so many deforming symptoms, investigation has come to the relief of rickets from at least one charge of physical deterioration. According to careful observations of Barenberg and Bloomberg,[1] bowed legs are by no means always due to rickets, despite the almost universal belief in such an association. As diagnostic criteria, the roentgenologic examination of the epiphyses and the content of inorganic phosphates were employed. Definite bowing of the legs was observed in infants who at no time manifested clinical, roentgenologic or chemical evidences of rickets. An added outcome of the study is the equally radical conclusion that the weight of the child and the fact that it stands early in life play a secondary part in the development of curvature. Furthermore, in many cases at least, syphilis may be excluded as the etiologic factor in the production of either craniotabes or bowing.

1. Barenberg, L. H., and Bloomberg, M. W.: The Significance of Craniotabes and Bowing of the Legs, Am. J. Dis. Child. **28**: 716 (Dec.) 1924.

THE ORIGIN OF CHOLESTEROL

Cholesterol, or cholesterin, as it was known to one or more generations of medically trained persons, is a tissue component that may appear in both physiologic and pathologic relations. It is found in varying quantities in all cellular tissues. In the blood and lymph, esters of cholesterol occur as normal components. Cholesterol is a component of bile, and appears in milk. Under certain abnormal conditions, concretions of cholesterol may arise in the biliary passages; the substance also occurs in atheromas of the arteries, in cysts of various sorts, in effusions, and in carcinomatous tissues. Such a catalogue, heterogeneous as it is, serves to indicate the ubiquity and the consequent presumable importance of the lipoid substance that possesses some of the physical properties of fats. For a long time the origin as well as the destiny of cholesterol has been under debate. There has been considerable doubt as to whether the oral administration of the substance, widespread as is its occurrence in dietary products, can effect an increase in the content of cholesterol in the blood and tissues. The consensus, or at least the preponderance of evidence, points to the possibility of such accumulation. Furthermore, there is some indication that ingestion of related higher alcohols or "sterols," such as those found in plant tissues, may also contribute to the enhancement of the cholesterol content in the animal organism. Indeed, it has seemed very uncertain as to whether cholesterol can be destroyed in the body. This is a matter of considerable importance, for obviously inefficient excretion of a component regularly absorbed from the diet or arising otherwise might lead to objectionable accumulation. It has been asserted that serious lesions may be produced in this way, and that under ordinary circumstances there is a delicate balance between the intake of cholesterol in the food, on the one hand, and its output in the feces and destruction in the body, on the other. A further possibility, that of the synthetic production of cholesterol in the organism, has been even more difficult of determination. It might be regarded as a simple procedure to make a chemical examination of the bodies of growing individuals at successive stages under dietary conditions in which the intake was accurately known. The experimental ideal of supplying foods entirely devoid of cholesterol is difficult to realize. However, it seems to have been attained by Randles and Knudson,[1] who

1. Randles, F. S., and Knudson, A.: Studies on Cholesterol, I. Synthesis of Cholesterol in the Animal Body, Science **60**: 530 (Dec. 5) 1924.

report as a result of feeding tests on rats that in every case the cholesterol content of the tissues of the animals receiving no cholesterol in their diet has been as high as that of other rats, indicating a synthesis of cholesterol by the animals on a cholesterol-free diet. The growth and appearance of the cholesterol-free group was normal. There are abundant indications today of various chemical groups that must be supplied preformed to the organism if nutritive well being is to continue. Perhaps cholesterol can now be safely eliminated from this group of dietary "essentials."

CURTAILING VENEREAL DISEASE PREVENTION

In reporting the Treasury Department appropriation bill to the House of Representatives, the Committee on Appropriations has reduced to $50,000 the amount available for the division of venereal diseases in the U. S. Public Health Service. The effect of this reduction will be to curtail the activities of this division and entirely eliminate the work of the division in cooperation with state boards of public health in venereal disease control. The appropriation for the current year, as fixed by the last Congress, is $149,000. Action of a similar kind was taken by the House Committee on Appropriations at the last session of Congress, but, as a result of protests from state boards of public health and similar organizations, the full appropriation was restored in the Senate. In explanation of the cut, the committee states that $25,000 represented allotment to the states, and that the remainder represents other activities. The sum of $50,000, the committee feels, is adequate for the amount of work that the Public Health Service "should carry on" in venereal disease prevention. It would be interesting to have the basis on which this decision was made.

Association News

GRANTS FOR RESEARCH IN MEDICINE

The Committee on Scientific Research of the American Medical Association will receive applications for grants for aid to research on problems of importance to medicine. On Feb. 15, 1925, action will be taken on the applications then on hand. Applications may be sent to the committee at 535 North Dearborn Street, Chicago.

Experimental Method in Education.—In education, the experimental method must displace the purely didactic statement of traditional doctrine—the loose exposition of personal opinion. Since a growing number of the things that constitute the materials of our equipment are amenable to proof, it is our business to demonstrate or expound the nature of the proof, and let the student draw his own conclusions from his own observations. This takes time and preliminary training in the premises and methods of the sciences that furnish proof. After this, the technic of medicine can be taught and not before. To carry out such a plan of teaching will become increasingly difficult with the growing complexity of medicine, but it can be done with occasional adjustments. Without it, no degree of brilliancy or natural endowment will avail.—Zinsser, Hans: *Brit. M. & S. J.* **191**:1059 (Dec. 4) 1924.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Hospital News.—The Montgomery Memorial Hospital, erected by the Methodist Church at Montgomery, has been completed and equipment is being installed. The city, it is reported, will erect an additional building on the hospital grounds to be known as the Children's Pavilion.

ARIZONA

Society News.—The Maricopa County Medical Society, Phoenix, Dec. 13, 1924, acted as host to the ladies' auxiliary at a dinner at the Arizona Club, and then held its annual business meeting, at which Dr. George M. Brockway was elected president; Dr. Harry J. Felch, vice president, and Dr. Reginald H. J. Stroud, secretary-treasurer.

ARKANSAS

Personal.—Dr. Joseph P. Runyan became superintendent of the Baptist State Hospital Clinic, Little Rock, January 1.

Physician Sentenced.—Dr. Joseph C. Thompkins, Prescott, and formerly of Smackover, it is reported, pleaded guilty in federal court, Nov. 26, 1924, to violation of the Harrison Narcotic Law, and was sentenced to one year and a day in the Fort Leavenworth penitentiary.

CALIFORNIA

Health Officers Appointed.—The following health officers have recently been appointed: Dr. Harry J. Willey of Porterville succeeds Dr. Orient C. Higgins; John A. Azevedo, Hayward, succeeds Dr. Paul E. Dolan, Livermore, as health officer of Alameda County; Mr. Frank V. Wilcoxen, Pacific Grove, succeeds Mr. James P. Evans as health officer of that city.

Bill to Curb Diploma Mills.—The state superintendent of public instruction, assisted by Armin O. Leuschner, Ph.D., University of California, is preparing a bill, it is reported, to introduce into the legislature which aims to prevent diploma mill activities, by fixing standards for all educational institutions. A prospective school would meet these standards before being allowed a charter from the secretary of the state of California.

Metabolic Clinic Opened.—The metabolic clinic founded by Miss Ellen B. Scripps, last year, at La Jolla, for the study and treatment of metabolic diseases, was opened, Dec. 11, 1924. Dr. Frederick M. Allen, New York, attended the opening of the clinic building, and then addressed the San Diego County Medical Society on "Experimental and Clinical Phases of Diabetes Mellitus." The Scripps clinic building accommodates twenty-five patients. There are specially equipped diet laboratories, chemical, clinical and metabolic laboratories, and an animal research laboratory. In addition to providing the building and laboratories equipped, Miss Scripps has provided a permanent fund for a staff of physicians and research workers interested in metabolic research.

COLORADO

Reception at Medical School.—The officers of the Medical Society of the City and County of Denver gave a reception, January 1, at the new medical school of the University of Colorado, reviving under new surroundings a happy custom interrupted by the World War.

License Revoked.—The license of Dr. John E. Doran to practice medicine in Colorado was revoked by the Colorado Board of Medical Examiners, July 1, 1924, he having been found guilty of unprofessional and dishonorable conduct, it is reported. Our records show Dr. Doran as living in Minneapolis and as licensed in Colorado, South Dakota and Minnesota.

DISTRICT OF COLUMBIA

Sofie A. Nordhoff-Jung Cancer Prize Modified.—The commission for the distribution of this prize for cancer study, founded by Dr. Sofie A. Nordhoff-Jung, has resolved to dis-

tribute the prize from now on only every two years to double the amount of the sum allotted heretofore; that is, $1,000. The next prize will reach distribution in 1926.

GEORGIA

Physician Arrested.—Dr. Benjamin E. Pearce, Atlanta, was bound over to the federal grand jury under bond of $300 following a preliminary hearing on a charge of violation of the Harrison Narcotic Law, it is reported.

Personal.—Dr. Thomas B. Gay, Jr., Athens, has been appointed director of the medical service for the Athens child health demonstration.——Dr. Enoch Callaway, La Grange, has been appointed in charge of the laboratory service at the Dunson Hospital, La Grange.

ILLINOIS

Laboratory Conference.—The Illinois Laboratory Association, an organization made up of public health workers of the state, met in Chicago, Dec. 6, 1924. Among others, Drs. George F. and Gladys Dick, Jacob C. Geiger and Katharine M. Howell gave addresses.

Society News.—At the annual election, Dec. 8, 1924, of the Adams County Medical Society, Dr. Charles D. Center, Quincy, was elected president; Drs. Frank Cohen, Quincy, and Walter E. Davidson, Liberty, vice presidents; Dr. Joseph H. Bloomer, Quincy, treasurer, and Dr. Harold Swanberg, secretary.

State Clinic to Be Reestablished.—The Illinois State Board of Health proposes to reestablish the clinic in Rock Island for the treatment of venereal disease, preferably in the old quarters in the court house, but in some other location should the supervisors who oppose the clinic refuse to sanction the former location. A majority of the public expenditure committee, which controls the court house arrangements, opposes the use of the court house under state control. The state will provide a nurse, equipment and medicine for the clinic, but expects the county to provide the room.

Kane County Society and Free Clinics.—At the December meeting of the Kane County Medical Society, Elgin, an amendment to the by-laws was adopted which provides that any member of the society who gives his time to free clinics which are not supervised by the county society will not be considered in good standing in the society. This action was taken following the report of a committee appointed in October to consider the question of free clinics. The Kane County Medical Society then went on record as favoring free clinics for the indigent poor only when such clinics were properly supervised by the county society. A committee was appointed to confer with the heads of the various clinics in the county and to work out a plan of cooperation in accord with the society's action.

Chicago

Personal.—Albert Bachem, Ph.D., Chicago, has been appointed professor of radiology and director of the laboratory at the University of Illinois College of Medicine, Chicago.

INDIANA

Personal.—Dr. Charles C. Marshall, Aurora, has been appointed county coroner by the commissioners to succeed Dr. George F. Smith, who was elected to that position in November but resigned.

IOWA

Personal.—Dr. Edward F. Strohbehn, Davenport, has been appointed president of the Mercy Hospital staff, Dr. Charles E. Block, secretary, and Dr. Anthony P. Donohoe, treasurer.

Society News.—At the meeting of the Sioux Valley Eye and Ear Academy, Sioux City, January 19, among others, Drs. Albert H. Andrews and Cassius C. Rogers, both of Chicago, will give addresses on the "Open Method of Submucous Resection" and "Fractures of the Base of the Skull," respectively, and Dr. Fred W. Bailey, Cedar Rapids, on "Calcareous Foreign Bodies in the Nose and Sinuses."

Physician Fined.—Dr. Albert G. Gran, Storm Lake, recently found guilty of "maintaining a liquor nuisance," was sentenced, Dec. 11, 1924, to pay a fine of $800 and costs, it is reported. Motion for a new trial was overruled by the court. Dr. Gran claimed, it is reported, that the liquid sold was a mixture of alcohol, water and "another ingredient" intended for the treatment of a disease with which the state agents seemed to be suffering, and that he was also unfortunately delayed in getting his permit to sell alcohol.

KANSAS

Personal.—Dr. Robert G. Klein, Dodge City, has been appointed part time county health officer and county physician to succeed Dr. Winfield O. Thompson, who resigned.

Society News.—At a meeting of the Norton-Decatur County Medical Society at the State Sanatorium for Tuberculosis, Norton, Dec. 10, 1924, Dr. Charles E. Henneberger, Atwood, was elected president; Drs. Herbert S. Bennie, Almena, and Garrett A. Van Diest, Prairie View, vice presidents, and Dr. Roland G. Breuer, Norton, secretary-treasurer. The former secretary-treasurer, Dr. Chauncey S. Kenney, Norton, who resigned at this meeting, served continuously for twenty-one years without ever being absent from a meeting, according to Dr. Breuer. The sanatorium was host to the society throughout the day; the afternoon was given over to a tuberculosis clinic.

KENTUCKY

Personal.—Dr. Ernest B. Bradley, Lexington, for ten years city bacteriologist, has resigned.

Hospital News.—The Speer's Memorial Hospital, Covington, recently dedicated a nurses' home, which cost $50,000.

LOUISIANA

Tuberculosis Hospital.—At a meeting of the Louisiana State Tuberculosis Commission, Dec. 20, 1924, a committee was appointed to plan for the erection of a tuberculosis hospital at Greenville Springs, near Baton Rouge, on property owned by the commission. The commission set aside $20,000 of its funds to be held subject to call for hospital purposes.

Hearings on Marine Hospital Bill.—The senate committee on public buildings and grounds will soon hold hearings to consider Senator Ransdell's bill for the erection of a new 600-bed marine hospital at New Orleans. The bill would authorize for that purpose an appropriation of $3,000,000. It appears at this time, it is reported, that the members of the steering committee in the senate are not inclined to be friendly to this bill.

Liquor Prescriptions Without Examinations.—Dr. Louis M. Coleman, a negro physician, Lake Charles, was recently fined $100 for the alleged failure to make examinations before writing prescriptions for intoxicating liquor as required by law. The prohibition agents testified, it is reported, that they bought liquor prescriptions from Dr. Coleman for $2 each; that he made no examination, and that he made "mythical diagnoses" for which the liquor was supposed to be prescribed.

MAINE

Portland Opens Malnutrition Campaign.—A campaign against malnutrition was opened at Portland, Dec. 1-13, 1924. There were fifty-eight students in attendance at the course of instruction in nutrition, representing all sections of Maine, New Hampshire, Massachusetts, New York, Maryland and Washington. All public health and school nurses of Portland and some public school principals enrolled. The work was under the auspices of the Woman's Literary Union, with the departments of education and health and the service clubs cooperating. Special meetings were held by the medical and dental societies. Seven physicians volunteered their services in connection with these classes.

MARYLAND

Society News.—Dr. Robert H. Riley, Catonsville, was elected president of the Baltimore County Medical Association, Dec. 17, 1924; Dr. William R. Dunton, Jr., Catonsville, vice president, and Dr. Edward H. Benson, Cockeysville, secretary-treasurer.

Physicians for School Work.—The commissioner of health of Baltimore, Dr. C. Hampson Jones, has appointed Drs. Lucille Liberles, Mary A. Waters, Eleanor B. W. Stewart and Elizabeth T. Bouchelle to resume the physical examinations of pupils in the secondary and high schools, which work, it was reported last September, would be discontinued this year (THE JOURNAL, Sept. 27, 1924, p. 1007). The new force will take up this work in January and will be augmented later by the appointment of another woman physician, nine men health officers, and ten public health nurses.

Negro Hospital Abandoned.—Plans begun more than six years ago for the Victory Hospital for negroes, formerly the Union Protestant Infirmary, have been abandoned. A campaign inaugurated among the negroes of Baltimore to raise

$50,000 to purchase the property yielded about $25,000. Since the remainder has not been paid, the trustees of the Union Memorial Hospital have requested a return of the property. There is a need for this hospital in Baltimore. The negro population is more than 115,000, and the Provident Hospital is the only exclusive negro hospital in the city. The trustees, comprising both white and colored people, have not given up hope that a way will be found to continue the project.

MASSACHUSETTS

Hospital News.—The Massachusetts Charitable Eye and Ear Infirmary, Boston, has changed its name to the Massachusetts Eye and Ear Infirmary.

Personal.—Dr. Alice Hamilton has just returned from Russia to take up her work in industrial toxicology in the Harvard School of Public Health.——Dr. Watson F. Rankin, secretary, North Carolina State Board of Health, delivered two lectures, Dec. 4 and 9, 1924, at the Harvard School of Public Health.

Society News.—Dr. William L. Aycock, department of preventive medicine, Harvard Medical School, addressed the Harvard Medical Society at the Peter Brigham Hospital, Nov. 25, 1924, on "The Epidemiology of Infantile Paralysis."——At a meeting of the New England Roentgen Ray Society, Dec. 19, 1924, at the Boston Medical Library, moving pictures of the stomach and duodenum were exhibited. The discussion was opened by Dr. William E. Preble.

Report of Committee on Rural Medical Service.—The committee on rural health and medical service, of which Dr. George H. Bigelow is chairman, filed its report, Dec. 16, 1924. There are, it appears, nineteen small towns in the state without a resident physician. The committee made no recommendations for relieving the situation by means of legislation, but submitted other suggestions; for example, the establishing of community health stations supported by several adjacent towns in sparsely settled regions, or by establishing special clinics at hospitals, to which physicians may bring their patients. The report adds that the need in Massachusetts at this time is for better hospitals rather than for more hospitals. The committee opposed a state subsidy for physicians for rural communities, and felt that any method yet proposed for lowering the standards of medical education would not give reasonable promise of improving the quantity or quality of rural medical service, and might impair both.

MINNESOTA

Gift to Medical School.—The Rockefeller Foundation has joined the General Education Board in a gift of $1,250,000 to complete the medical school of the University of Minnesota, at Minneapolis. The gift carries the proviso that the university obtain elsewhere $2,350,000, which will complete the estimated cost of the proposed expansion, $3,600,000.——An additional gift of $500,000 to the University of Minnesota was announced, Dec. 23, 1924, by William H. Eustis, Minneapolis, who has already given more than a million dollars to the university and the Dowling School for Crippled Children.

County Sanatoriums Reduce Tuberculosis.—The state advisory commission, which supervises the work of the county sanatoriums, issued a report, Dec. 18, 1924, covering its ten years' work. In the last five years, the report states, those counties in Minnesota which maintain tuberculosis sanatoriums have had a 10 per cent. greater reduction in the death rate from tuberculosis than the remainder of the state. Whereas in the latter there has been a decrease of 17 per cent. during that time in the tuberculosis death rate, in the former counties there has been a decrease of 27 per cent. The county sanatorium law was passed in 1913, and at present thirty-seven counties in the state maintain sanatoriums.

MISSOURI

Loan Fund for Students.—The appeal for contributions to the permanent scholarship loan fund, recently started at Washington University, St. Louis, has met with a hearty response, there having been pledged already $120,000. The work will continue until the fund has reached a million dollars. Shortly after Washington University inaugurated its scholarship loan fund movement, the bequest of $150,000 by the late Miss Mary E. Perry to the University of Missouri, to establish a memorial to her father for the financial assistance of students at the university, was announced. This method of assisting students is not charity; it is a loan which will be returned when the student has entered on his life's work.

NEVADA

Memorial Library.—The medical library of the late Dr. George McKenzie, Reno, comprising more than 400 volumes, has been presented to the University of Nevada by Fannie V. McKenzie, and will be kept intact as a memorial library.

NEW JERSEY

Hospital News.—The Jersey Eye, Ear, Nose and Throat Hospital, Jersey City, was recently opened.

Society News.—Dr. George M. Mackenzie, New York, addressed the Passaic County Medical Society, Passaic, Nov. 13, 1924, on "The Treatment of Conditions Due to Allergy."——At a public meeting conducted by the Essex County Medical Society and the Academy of Medicine, Newark, recently, Dr. James Ewing, professor of pathology, Cornell University Medical School, New York, gave an address on "Cancer."

Chiropractors and Others Fined.—The state board of medical examiners reports the legal action taken recently in the following cases of chiropractors, midwives and others:

Fred H. Knierim, unlicensed chiropractor, sentenced to fifty days in jail for practicing without a license.

Louis J. Weiner, Red Bank, an advertising "foot correctionist and orthopedic specialist," convicted of practicing medicine without a license.

William H. Sharp, unlicensed chiropractor of Pennsgrove, fined $200 for practicing without a license.

Salvatore Caridi, West New York, N. J., fined $200 for practicing medicine without a license.

James F. Kerr, whose license to practice was revoked by the board in 1922, pleaded guilty to a second charge of practicing without a license, Oct. 24, 1924, and failing to pay the fine, was sentenced to twenty additional days in jail.

Giuseppe Gorga, Hoboken, was fined $200, Oct. 31, 1924, for practicing medicine without a license.

E. J. Herman, unlicensed chiropractor, Palmyra, was fined $200, Oct. 31, 1924, for practicing without a license.

Feliska Wronski was fined $200, Nov. 18, 1924, for practicing midwifery without a license.

The licenses of Leopoldine Rojar, Jersey City, and that of Emily Eisfelt, Newark, midwives, were revoked, Dec. 4, 1924, each having been found guilty of the practice of criminal abortion.

NEW YORK

New Milk Ordinance.—Ithaca recently passed an ordinance which requires, among other things, that all milk sold in that city after July 1, 1925, must be from tuberculin tested cows. At the present time about 80 per cent. of the herds supplying milk to Ithaca are tuberculin tested.

Memorial Cottage at Trudeau.—A cottage for women who have incipient tuberculosis has been erected on the grounds of the Trudeau Sanatorium, Saranac Lake, as a memorial to Arthur and Susan Gillender, to erect which the Charity Organization Society of the City of New York received $120,000 from the estate of Jessie Gillender. The will imposes no restrictions on the selection of the patients except that they must be self-supporting; but the income of the fund will be used for the support or partial support of women who may be sent to the cottage.

New York City

Memorial Service.—A service in memory of the late Dr. Andrew Rose Robinson was held at the New York Polyclinic Medical School and Hospital, Dec. 7, 1924.

Deaths from Poison Liquor.—There were on Dec. 26, 1924, nearly 150 alcoholic patients in the Bellevue psychopathic and accident wards. On this day one death occurred and thirty new patients were admitted. Of the 150 aptients, 103 are in the psychopathic ward and between forty and fifty are in the accident ward, having been injured in accidents attributed to intoxication.

Typhoid Fever Situation.—There were twenty-nine new cases of typhoid fever reported, Dec. 23, 1924, bringing the total number of cases in the present outbreak to more than 400. Although many clues received from patients as to the cause of their illness had been run down, the source of the outbreak was still undetermined. Examination of the beds from which shell fish are obtained did not demonstrate that the cause was to be found there, it is reported.

Alumni Meeting.—The Association of the Alumni of the College of Physicians and Surgeons will hold its sixty-fifth annual meeting at the Columbia University Faculty Club,

West One Hundred and Seventeenth Street, January 12. After the dinner ($3 a plate for nonmembers and guests), Henry F. Osborn, Ph.D., will speak on his "Journeys Abroad in the Stone Age." Tickets can be obtained from the secretary, Dr. William H. Woglom, 1145 Amsterdam Avenue.

Society News.—Dr. Charles N. Gelber was elected president of the Yorkville Medical Society, Dec. 15, 1924; Drs. Adolph Stern and Isaac Glassman, vice presidents; Dr. Maurice I. Meltzer, corresponding secretary, and Dr. Hugo O. Klein, treasurer.——At a recent meeting of the Riverside Medical Society, Dr. Isador W. Kahn was elected president; Dr. Michael Schuman, vice president; Dr. Samuel Morse, secretary, and Dr. Louis Lewis, treasurer.——At the one hundred and fourth annual meeting of the Medical Society of the County of Kings, Dec. 16, 1924, the following officers were elected for the ensuing year: president, Dr. John E. Jennings; vice president, Dr. O. Paul Humpstone; secretary, Dr. Thomas M. Brennan; treasurer, Dr. Charles H. Goodrich; associate treasurer, Dr. Eliot Bishop; directing librarian, Dr. William Browning; associate directing librarian, Dr. Jacques C. Rushmore; trustee, Dr. Charles A. Gordon, retiring president.

Postgraduate Instruction.—Arrangements have been made for courses open to physicians and dentists, to be held for ten weeks, beginning February 18, by the New York State Society of the American Stomatologic Association as follows: stomatologic bacteriology, by Drs. William H. Park and Charles Krumwiede; physiology of nutrition and diet selection, Holmes C. Jackson, Ph.D., and clinical stomatology, by Alfred Asgis, D.D.S., Dr. John Kelly and Dr. Noah Philip Norman. Applications should be made to the New York Stomatological Clinics, 33 West Forty-Second Street, New York City.

Hospital News.—The usual holiday distribution of funds from the Benjamin Altman Foundation included this year $10,000 to the United Hospital Fund; $10,000 to the Association for Improving the Condition of the Poor; $25,000 to the Catholic Charities of the Archdiocese of New York; $25,000 to the Federation for the Support of Jewish Philanthropic Societies.——During the last year the New York Tuberculosis Association gave 216 concerts in various hospitals and fifty band concerts on the lawns of hospitals.——The Neurological Institute will receive the proceeds of a performance of the new "Chauve Souris," just arrived from abroad, January 13. The Forty-Ninth Street Theater has been engaged for the event.

Clinics on Contagious Diseases.—The commissioner of health has decided to established clinics on contagious diseases at the Willard Parker Hospital, to be conducted under the direct supervision of the acting director of the Bureau of Hospitals. Physicians who desire to attend these clinics should register at once with the commissioner of health. Each section will be limited to twelve physicians, according to the *New York Medical Week*, and will receive two clinics on diphtheria, one on scarlet fever, one on measles and one on laboratory work. Drs. William H. Park, Henry W. Berg, William J. Mersereau and Isidore H. Goldberger have consented to hold these clinics, beginning the second week in January.

Amending the Nurse Practice Act.—In view of the shortage of trained nurses for tuberculosis patients, and for other reasons, the Public Health Committee, New York Academy of Medicine, went on record recently favoring an amendment to the Nurse Practice Act. The committee passed the following resolution:

> *Be it Resolved*, That the Public Health Committee of the New York Academy of Medicine favor an amendment to the Nurse Practice Act which shall give official recognition with a suitable title to graduates of training schools operated in conjunction with tuberculosis sanatoria in this state, provided the sanatoria meet the requirements to be established by the Board of Regents and provided the course of instruction be of at least two years' duration and that it meet also any specific requirements for the training of nurses to care for the tuberculosis sick, which shall be formulated jointly by the Board of Regents and representatives of the tuberculosis sanatoria in the state.

Baby Health Stations.—In these stations of the department of health, nearly 35,000 babies under one year of age have been enrolled during the last year. A survey shows that about 50 per cent. of these babies were being breast fed. Baby health stations are centers for demonstrations to mothers, and for instruction in the modification of milk formulas, methods of bathing and dressing, and the prevention of children's diseases. During the year, more than 16,000 vaccinations were performed by station physicians and more than 4,500,000 quarts of Grade A milk sold to mothers at a reduced price, a large part of which was for older children whose health was below par. A total of about 750,000 visits was made by mothers to these stations during the year, and more than 200,000 visits to homes by the station staff.

Personal.—Thirty physicians from thirteen medical organizations in Brooklyn gave a dinner at the University Club to honor Dr. Jacob Fuhs, for fifty years a practitioner in Brooklyn. The dinner celebrated Dr. Fuhs' seventy-fifth birthday.——Dr. Alexis Carrel sailed for Havre, Dec. 10, 1924.——The executive committee, United Hospital Fund, announces that Minott A. Osborn has been appointed director of the fund. Mr. Osborn was formerly acting secretary of Yale University and secretary of the Yale Alumni advisory board.——Dr. Frederick F. Russell, general director, International Health Board, will leave, January 3, to visit public health institutions in Italy, France, Denmark and England.——Dr. Richard E. Tottenham, Dublin, Ireland, who has been appointed professor of obstetrics at the medical school of the University of Hongkong, arrived in New York, Dec. 15, 1924, to study, before sailing for the Orient, medical institutions in the United States under the auspices of the Rockefeller Foundation.——Dr. Anthony Bassler will deliver a lecture on "Stomatology in Relation to Internal Medicine," at the monthly meeting of the American Stomatological Association to be held, January 8, at 50 West Eighty-Eighth Street.——Dr. Charles Rosenheck has been appointed associate attending neurologist at the Jewish Memorial Hospital of New York.——Dr. Emil Altman is the first appointee of the newly created position of chief medical examiner of the board of education.——Dr. Simon Flexner will leave early this month for Europe and the Near East, and will return in September.——Dr. Philip I. Nash was the guest of honor at a banquet, December 25, attended by a thousand fellow townsmen of the Coney Island section in recognition of his civic activities.

NORTH CAROLINA

Society News.—Dr. Sophia B. Brunson, Sumter, was elected president of the Sumter County Medical Society at the recent annual meeting, Dr. William M. Bradley, Mayesville, vice president, and Dr. Harry L. Shaw, Sumter, secretary-treasurer (reelected).

Medical Society Approves Trust Fund.—The Mecklenburg County Medical Society, Charlotte, went on record, Dec. 16, 1924, as pledging its support and cooperation in furthering the plans of the James B. Duke trust fund, and particularly that portion which provides hospitals for the indigent sick for the two Carolinas. The trustees of Trinity College, Durham, have voted to change the name of the college to Duke University (THE JOURNAL, Dec. 20, 1924, p. 2027).

OKLAHOMA

Hospital News.—The Shawnee Indian Sanatorium, Shawnee, the capacity of which will be about seventy-five, will be ready for Indian tuberculosis patients in January.

Society News.—Dr. Everett S. Lain, president, Oklahoma State Medical Association, addressed the Stephens County Medical Society, Nov. 6, 1924, at Duncan, on "Medical Organization and Its Benefits."——At the annual meeting of the Oklahoma County Medical Society, Oklahoma City, Dec. 13, 1924, Dr. Harry Coulter Todd was elected president; Dr. William W. Rucks, vice president, and Dr. Simon Ernest Strader, secretary-treasurer.——Dr. Clarence S. Summers was elected president, Dec. 8, 1924, of the Tulsa County Medical Society for 1926, and Dr. Alvin Ray Wiley, secretary for 1925. Dr. Horace T. Price is president for 1925.

OREGON

Hospital News.—A $200,000 Doernbecher Memorial Hospital for Children, to be operated by the University of Oregon Medical School, will be constructed in the near future at Eugene.

PENNSYLVANIA

Society News.—At a meeting of the Westmoreland County Medical Society, Greensburg, January 6, Dr. Elmer H. Funk, assistant professor of medicine, Jefferson Medical College, Philadelphia, spoke on "Diagnosis and Treatment of Pulmonary Lesions Simulating Tuberculosis."

Personal.—Dr. Thomas W. Jackson, medical director of Bucks County, has resigned on account of ill health.——Dr.

Chingson Y. Ling, who is now at the University of Pennsylvania Graduate School of Medicine, Philadelphia, will return to China this winter to become the head of a department of bacteriology and pathology at the medical college, Shanghai, China.

Hospital News.—St. Joseph's Hospital, Reading, has awarded contracts for buildings amounting to $474,000.—— The board of managers of the Williamsport City Hospital has awarded contracts for a $500,000 hospital building.—— The new Locust Mountain Hospital, Shenandoah, built at a cost of more than $300,000, raised by public subscription, was turned over to the state, Nov. 10, 1924.——The State Hospital, Philipsburg, the construction of which began in October, 1922, was opened, Oct. 31, 1924. It cost $300,000.—— The transformation of the Dauphin County Almshouse, which has been in progress during the last year, will be completed during 1925, with extension of services for tuberculosis, contagious disease and genito-urinary patients. Arrangements for intern service will be made through the Harrisburg Hospital.

Philadelphia

Dr. de Schweinitz Elected University Trustee.—Dr. George E. de Schweinitz, formerly President of the American Medical Association, was elected a trustee of the University of Pennsylvania, Dec. 15, 1924.

Women's Auxiliary Organized.—At the formal organization at the Bellevue-Stratford, Dec. 19, 1924, of the Women's Auxiliary of the Medical Society of Pennsylvania, physicians and their wives organized to combat the attack against the vaccination law that is expected to develop soon after the legislature convenes.

Personal.—Dr. Valentine William Murray Wright, for the last year in charge of surgical work for the Near East Relief in Armenia, has been appointed to the staffs of the Pennsylvania and Howard hospitals.—— Dr. John H. Musser, Jr., who recently resigned from the associate professorship of medicine, University of Pennsylvania, took the chair of medicine in Tulane University School of Medicine, Dec. 28, 1924. Dr. Truman G. Schnabel has been appointed chief of the medical service at the Howard and Philadelphia General hospitals, and Dr. Arthur W. Phillips on the staff of the Presbyterian Hospital to succeed Dr. Musser.

Survey of Industrial Medicine.—The Philadelphia Health Council and Tuberculosis Committee, during the last six months, made a survey in this city to learn to what extent employers provide medical service. It was found that of 192 industrial firms in Philadelphia, each having more than 300 employees, only forty-one maintains a complete medical service, i. e., a physician, a nurse and a dispensary; thirty-five maintained medical service on a smaller scale, and sixty-four others have a physician on call or they provide first aid service. Of 676 firms which employ from twenty-five to 300 employees, only five had complete medical service. Fifty-one large plants, each with more than 300 employees, provide no medical service of any kind.

RHODE ISLAND

Personal.—Dr. Alexander M. Burgess, Providence, has been appointed medical director to Brown University.

SOUTH CAROLINA

Hospital News.—The new Mary Black Clinic and private hospital, Spartansburg, founded by Dr. Hugh R. Black, 1919, was opened, Dec. 15, 1924.

Society News.—Dr. Drayton M. Crosson, Leesville, president, South Carolina Medical Association, addressed the Pee Dee Medical Society, Nov. 18, 1924. The Pee Dee association comprises Chesterfield, Marlboro, Darlington, Dillon, Marion, Horry and Florence counties, these being the sixth councilor district of the South Carolina Medical Association. It is the second oldest medical society in South Carolina. The other invited guest, Dr. Marvin Pierce Rucker, Richmond, Va., addressed the society on "Parturition, a Surgical Procedure."

SOUTH DAKOTA

Society News.—At a meeting of the Sioux Falls District Medical Society, Dec. 9, 1924, Dr. Paul R. Billingsley was elected president, Dr. William P. Roberts, vice president, and Dr. David A. Gregory, secretary-treasurer (reelected). Dr. Hermon C. Bumpus, Jr., Mayo Clinic, Rochester, Minn., addressed the meeting on "Renal Infections."

TENNESSEE

Society News.—At the annual meeting of the Shelby County Medical Society, Memphis, Dec. 17, 1924, Dr. John M. Maury, Memphis, was elected president; Dr. James B. Stanford, vice president; Dr. Arthur F. Cooper, secretary (reelected), and Dr. Thomas N. Coppedge, treasurer (reelected). The retiring president, Dr. William F. Clary, Jr., was elected to the board of censors.

TEXAS

Hospital News.—The Jefferson County Tuberculosis Hospital, Beaumont, costing $50,000, was recently opened.——An addition to the Santa Fé Railway Employees Hospital, Temple, costing $125,000, will be started soon.

New State Superintendents.—The state board of control announces that Dr. John Preston has resigned, effective January 15, as superintendent of the State Lunatic Asylum at Austin, and will be succeeded by Dr. Job G. Springer, now superintendent of the Southwestern Insane Asylum, San Antonio, the superintendency of the latter institution being transferred to Dr. Charles W. Castner, now superintendent of the East Texas Hospital for the Insane, at Rusk. Dr. William J. Johnson, now superintendent of the Hospital for the Senile Insane, has been tendered the superintendency of the institution at Rusk, but no announcement had been made concerning the latter appointment, Dec. 18, 1924.

VIRGINIA

Personal.—Dr. Claude C. Coleman was elected president of the Richmond Academy of Medicine at the annual election, Dec. 9, 1924, and Drs. Warren T. Vaughan and Arthur S. Brinkley, vice presidents.

Illegitimate Birth Rate.—According to the registrar of the state bureau of vital statistics, Virginia has the highest white illegitimate birth rate of any state within the registration area. In 1923 there were recorded in the state 63,438 living births and 3,943 births out of wedlock. Of the white mothers, one out of every forty-five was unmarried, while among the colored population one in every 5.5 living births was illegitimate.

Illegal Practitioner Sentenced.—David McGraw, colored, Richmond, was fined $100 and costs and sentenced to six months in jail recently for practicing medicine without a license, it is reported. On the assurance of his attorney that McGraw would discontinue "practice," take down his "front door sign," and delete his name from the telephone directory in which he is listed as a physician, the court suspended sentence pending his carrying out the conditions imposed.

PHILIPPINES

The Culion Leper Colony.—The chief of the Culion leper colony, José Avellana Basa, reported that in July there was a total of 5,103 lepers in the colony, four of whom were Americans, one a European, one a Japanese and seventeen Chinese. The total number comprised 2,487 men and 1,318 women. There were 2,350 lepers married, 267 widows and 1,296 children.

PORTO RICO

Society News.—At the annual meeting of the Porto Rico Medical Association, San Juan, Dec. 13-14, 1924, the following officers were reelected: Dr. Eugene Fernandez Garcia, San Juan, president; Dr. Augustin R. Laugier, San Juan, vice president; Dr. Ramon M. Suarez, Santurce, secretary, and Dr. Manuel Pavia Fernandez, San Juan, treasurer. Dr. Juan H. Font, Cayey, was designated delegate to the American Medical Association, and Dr. Jacinto Aviles, San Juan, as alternate. The next annual meeting will be at Coamo Springs, Coamo, P. R.

CANADA

Personal.—Dr. William L. Holman, associate professor of bacteriology, Johns Hopkins University Medical School, Baltimore, has been appointed associate professor at the University of Toronto Faculty of Medicine, Toronto.

Society News.—Dr. Thorvald Madsen, director of the Danish state serum institute, Copenhagen, and chairman of the health committee of the League of Nations, addressed the Medical Society of the University of Toronto, Nov. 14, 1924. ——The semiannual business meeting of the Ontario Medical Association will be held, January 14, at the Academy of Medicine, Queen's Park, Toronto.——Under the auspices of the Committee of Interrelations of the Medical Profession

and the Public, a banquet will be held at the King Edward Hotel, to which about twenty-five laymen, representing as many organizations in the community, have been invited.

Conference on Medical Services.—At this conference, arranged by the Canadian Medical Association and held under the patronage of the Hon. Henri S. Beland, M.D., minister of health for Canada, in the House of Commons, Ottawa, Dec. 18-20, 1924, the opening addresses were made by the president of the Canadian Medical Association, Dr. John Franklin Kidd, Dr. David Low, president-elect, and Dr. Beland. Dr. John J. R. MacLeod, Toronto, and Dr. Charles F. Martin, Montreal, spoke on medical education, Dr. John W. S. McCullough, Toronto, on "The Greatest Public Health Need of Canada," and the subject of medical licensure was introduced by Dr. James M. MacCallum, Toronto, past president, Medical Council of Canada.

Public Health News.—A mild epidemic of smallpox has broken out at Stratford, Ont., and the board of health has suspended the weekly baby clinics there. Two schools in small villages just outside Stratford have been closed.——According to Dr. John A. Amyot, deputy minister of health in the federal government, who recently addressed the dominion council of health, Ottawa, the regulations requiring the medical examination of European immigrants have proved most satisfactory. There is, he said, a high standard of health among the arrivals in Canadian ports. The $200 fine imposed on steamship companies for bringing diseased persons to Canada has been effective.——A widespread epidemic, accompanied by peculiar stomach symptoms and in many cases hiccups, is afflicting victims throughout the province of Ontario.

Hospital News.—Dalhousie University Faculty of Medicine, Halifax, N. S., opened its outpatient clinics of the Public Health Clinic, Nov. 3, 1924, under the general direction of the clinical chiefs of the faculty. The clinic will serve the Victoria General, Grace Maternity, Children's and the civic tuberculosis hospitals as far as outpatient service is concerned.——The Laval Tuberculosis Hospital, Quebec, has increased its capacity by the addition of 130 beds, and hereafter will be known as the Laval Taschereau.——The federal department of health at Ottawa has arranged for the transfer of the administration of the Parcsavard Hospital to the department of hygiene of the Province of Quebec.——The Tuberculosis Hospital at St. Foye and Lake Edward, Quebec, now has a capacity of more than 500 patients following recent alterations. Heretofore it has been used only as a hospital for immigrants.——Dr. Edward Ryan, superintendent, Ontario Hospital, Kingston, Ont., recently estimated that the province is caring for more than 9,000 mental defectives in government institutions at a cost of over $7,000,000 annually, and that more than 2,000 cases in Ontario are not in the hospitals. Of 109 patients who entered the Kingston, Ont., hospital last year, eighty-seven were discharged as cured.——A small hospital has been established at Port Elgin, Ont.

GENERAL

Personal.—Dr. Solon Marx White, professor of medicine, University of Minnesota Medical School, addressed the twenty-second annual convention of the national Nu Sigma Nu undergraduate medical fraternity at St. Louis, Nov. 29, 1924, on "Essential Hypertension and Arteriosclerosis."

"Useful Drugs" Basis of Examination.—At a recent meeting, the executive committee of the National Board of Medical Examiners adopted the booklet Useful Drugs, published by the Council on Pharmacy and Chemistry of the American Medical Association, as the basis for the examination in materia medica by the National Board.

Mortality from Tuberculosis: 1923.—The Department of Commerce announces that 90,732 deaths in 1923 were due to tuberculosis in the registration area, with a death rate of 93.6 per hundred thousand population, a drop of 3.4 over the rate of 1922. For the twenty-five states that show adjusted rates but not by color, Colorado had the highest (158.6) per hundred thousand population, and Nebraska the lowest (34.2).

Census of "Patent Medicines."—The Department of Commerce announces that in the biennial census of manufacturers in 1923, the output of "patent medicines" and compounds, druggists' preparations, and perfumery and cosmetics aggregated during the year a value of more than $425,000,000, or an increase of 24.5 per cent. compared with the value in 1921, the last preceding census year. Of the total given for "patent" and proprietary medicines for sale to the general public, 0.5 per cent., or $862,403, was contributed by medicines containing narcotics.

American Red Cross.—Chief Justice William Howard Taft presided at the annual meeting of the American Red Cross, Dec. 10, 1924, at the national headquarters, Washington, D. C. John D. Ryan, New York, and George E. Scott, Chicago, were reelected members of the central committee. In summarizing briefly the year's work, the chairman, John Barton Payne, said that the confidence of the American people in the Red Cross was demonstrated at the time of the Japanese earthquake, when the President requested $5,000,000 to aid the Japanese, and the American people responded with $11,600,000.

Annual Tables of Constants.—Under the authority of the International Research Council and the International Union of Pure and Applied Chemistry, an international commission publishes annual tables of constants and numerical data, physical, chemical and technologic. Volume V, containing the data for the years 1917 to 1922, is now on the press and will be sold to advance subscribers at 25 per cent. off the list price, which makes it $16 (paper) or $19 (cloth). A complete index of Volumes I to V is also in course of preparation. Orders should be sent to the University of Chicago Press, Chicago.

Mortality from Diabetes Mellitus: 1923.—The Department of Commerce announced that there were 17,351 deaths from diabetes mellitus in 1923 in the death registration area, and that the death rate was 17.9 per hundred thousand population as compared with 18.4 in the previous year. Of the thirty-four states which show adjusted rates for both years, ten show higher rates in 1923. New York had the highest adjusted rate (24 per hundred thousand population) in 1923, and Mississippi the lowest (7.2). Of nine states showing adjusted rates by color, Maryland had the highest (19.4) for the white population, and Virginia the highest (13.5) for the colored, while Tennessee had the lowest (7.2) for the white population, and Mississippi the lowest (4.6) for the colored.

Mortality from Typhoid Fever: 1923.—The Department of Commerce announces that there were 6,635 deaths from typhoid fever in 1923 in the death registration area, which comprises about 88 per cent. of the total population of the United States. The death rate from this disease in 1923 was by far the lowest ever shown for the registration area (6.8 per hundred thousand). Of nine states showing adjusted rates by color, Maryland had the lowest (5.2) for the white population and also the lowest (13.7) for the colored, while Kentucky had the highest rate for the white population (18.9) and Tennessee the highest rate for the colored (38.7). Of twenty-five states which show adjusted rates, but not by color, Colorado had the highest rate in 1923 (10.7) and Rhode Island the lowest (1) per hundred thousand population.

Death Rates from Childbirth.—The Department of Commerce announces that of thirty states for which figures are available for the years 1922 and 1923, fourteen show higher rates from puerperal causes in 1923. South Carolina has the highest 1923 death rate from these causes (9.7 per thousand live births) and Utah the lowest (5). Separate rates for white and colored people are shown only for Kentucky, Maryland, Mississippi, North Carolina, South Carolina and Virginia. The highest rate for the white race in 1923 appears for South Carolina (7.4) and the lowest (5.4) for both Kentucky and Maryland, while for the colored race the highest rate (15.4) is for Kentucky and the lowest (8.3) for Maryland. For the ten states and the District of Columbia (constituting the birth registration area of 1915), the death rate from puerperal causes was 6.4 per thousand live births in 1923, as compared with 6.2 in 1922, 6.5 in 1921 and 6.1 in 1915.

Report of Bureau of Mines.—In his annual report, the director of the bureau of mines states that, from 1911 to 1923, there were 23,822 lives lost by accidents in bituminous coal mines in the United States. Thirteen per cent. of these were due to explosions of gas and coal dust. Despite the general good will of miners, operators, inspectors and manufacturers, the recommendations of the bureau of mines to prevent accidents have not been adopted as broadly as is necessary. One state, Utah, following a mine explosion that took 171 lives, is having every practical tested method for preventing or limiting explosions introduced as rapidly as possible. The bureau of mines considers that had the coal mines of this country followed the principle of rock-dusting mines as a means of preventing the spread of explosions,

many large disasters would not have occurred. The bureau urges in its report that rock-dusting be adopted as soon as practicable in all bituminous mines in which dust is a hazard.

Mortality from Cancer: 1923.—The Department of Commerce announces that 86,754 deaths in 1923 were due to cancer in the death registration area, and that the death rate from cancer in the registration area in 1923 was 89.4 per hundred thousand population as against 86.8 in 1922. If the same death rate for cancer prevailed in the rest of the United States as did in the death registration area, the total number of deaths from cancer in the entire United States would have been 99,000 in 1923. Adjusted rates for both years are shown for thirty-four states, twenty-three of which had higher rates in 1923, and the highest (102.6) was in New York, the lowest (52.2) in South Carolina. Rates have been calculated separately by color in a few states, and in this group the highest adjusted rate for the white population was 100.2 for Maryland, and the highest for the colored population, 91.8, also for Maryland. The lowest adjusted for white people was 53.7 for Tennessee, and for colored people 43.1 for South Carolina.

Size of Families in Birth Registration Area.—The Department of Commerce announces that in 1923, considering only fathers aged 40-44 and only those occupations represented by at least fifty births, the lowest average number of children ever born (2.8) appears for architects, and the highest average (7) for coal mine operatives; that the lowest average number of children living (2.6) appears for actors and showmen, and the highest average number of children living (5.9) appears for coal mine operatives. Considering only fathers aged 45-49 and only occupations represented by at least fifty births, the lowest average number of children ever born (3.3) appears for dentists and physicians, and the highest average number (8.1) appears for foremen, overseers and inspectors and for coal mine operatives; the lowest average number of children living (3) appears for dentists and physicians and the highest average number (6.6) appears for coal mine operatives. To mothers with husbands aged 40-44, the average number of children ever born was 5.6 and the average number living 4.9. To mothers with husbands aged 45-49, the average number of children born was 6.4 and the average number living 5.5. To occupied fathers aged 40-44 in the birth registration area, there were born 147,209 children in 1923; and to occupied fathers aged 45-49 the number of children born was 66,764.

Canned Salmon Handlers Not Inspected.—The official report of the Alaska federal grand jury calls attention to certain unsatisfactory sanitary conditions in the salmon industry in Bristol Bay and the western part of the third division. The grand jury found that there was no adequate examination or inspection of men who had the actual handling of the fish products; that several instances were reported in which these handlers of salmon had open syphilitic ulcers, and that many of them were addicted to the use of narcotics, the foremen of Chinese crews often dispensing the drugs to the men. The handlers are greatly undernourished, and revolting crimes of violence and immorality are common. The grand jury recommended, among other things, as a result of these findings, that a rigid physical inspection be required of cannery employees at the port of departure on the Pacific Coast to determine whether they are infected with disease or addicted to the use of narcotics, and if so, that they be refused employment and not taken to the fishing fields in Alaska. There are no inspectors within the cannery to guarantee the purity of the food, nor is there any guarantee to the people who consume the canned salmon that the product is fit for consumption. The grand jury, therefore, recommended that the government place inspectors in these canneries and maintain a stricter supervision and inspection of employees who actually come in contact with the food while being packed.

LATIN AMERICA

Personal.—Dr. Germán Abadía, who recently returned to Bogota after taking a postgraduate course in public health in the United States, has been appointed chief of the dispensary service for prophylaxis of venereal disease in Colombia.——Dr. A. J. Valenzuela, president of the Sociedad Médico-Quirúrgica of Guayaquil, has been elected rector of the University of Guayaquil.——Dr. J. Valls has been selected by the medical faculty of the University of Buenos Aires for the postgraduate fellowship in orthopedics at the Rizzoli Institute at Bologna.——Dr. D. B. Wilson of the International Health Board has arrived at Bogota to continue the hookworm campaign, in place of Dr. F. A. Miller, who is leaving for other fields after four years of work in Colombia.

FOREIGN

Three New Italian Universities.—Milan, Florence and Bari each inaugurates a new university with the New Year, while Sassari is facing the loss of its old university.

Ban on Foreign Medicines.—The *Deutsche medizinische Wochenschrift* quotes a decision of the authorities of Czernowitz, the capital of Bukowina, to the effect that no remedies of foreign make are to be allowed to be sold in the city, and all the physicians have been notified to refrain from prescribing them.

Sanatorium for Students.—The Union nationale des étudiants de France has started a movement for a sanatorium for students. It is to be near Grenoble, at an altitude of nearly 4,000 feet. An appeal for subscriptions is being made. M. Crouzat, 13 rue de la Bucherie, Paris, is the treasurer of the organization.

Tribute to Discoverer of Laryngoscope.—Madrid city authorities recently called on the medical profession to aid them in paying tribute to the memory of that son of Madrid, Manuel Garcia, the teacher of singing who inaugurated scientific study of the larynx, and is said to have invented the laryngoscope. After a formal ceremony in the Academia de Medicina, a tablet was unveiled to mark the house where he was born.

Eleven Centuries of Pavia University.—In May of the year 825, Lotario, king of Italy, appointed the school at Pavia—already a flourishing institution of learning—the seat of higher learning for the northern part of his kingdom. The university and the city of Pavia are planning to celebrate the anniversary next May. Our Italian exchanges give a long list of the notables who have been educated or have taught at the University of Pavia, down to Golgi, who shared with Ramón y Cajal the Nobel prize in medicine in 1906.

Royal College of Physicians of Ireland.—The three hundredth anniversary of the birth of Dr. John Stearne, the founder and first president of the Royal College of Physicians of Ireland, was celebrated, Nov. 26, 1924, at the college, when an oration was delivered by Dr. Thomas C. P. Kirkpatrick, the registrar. The college was started in a building intended for a place of imprisonment but never used for that purpose, and the royal charter was obtained in 1667. Sir William J. Thompson, president of the college, presided at the ceremony, and the large assembly included the governor-general and the president and council of the Royal College of Surgeons and the provost of Trinity College.

Epidemic Encephalitis in Germany.—The authorities in Germany recently sent a questionnaire to all the physicians in the country inquiring about the prevalence of epidemic encephalitis and the clinical pictures observed. Funds have been appropriated for research on the causal agent and means of treatment. While at first the lethargic form prevailed, gradually this has been superseded by the motor restlessness type, with tremor, choreiform jerking and transient paralysis of the ocular muscles. The mortality of the lethargic type was about 20 per cent., and of the hyperkinetic type, 30 per cent.; but many of those who survive are permanently incapacitated and succumb to the inexorably progressive course. Schultze, Göttingen, estimates that in the province of Hanover, alone, there have been 1,000 cases of encephalitis since 1918, and 400 of them passed into the chronic stage.

Proposed Prophylaxis of Goiter at Utrecht.—The *Nederlandsch Tijdschrift* relates that iodin is to be given systematically to the girls of some schools at Utrecht. The experiment is to consist of arbitrarily separating the whole school into two groups. The even numbers will be given iodin; the others not. The thyroid of all the children of both groups will be measured before and again several months later. There have been a great many objections from parents and practitioners. The influence of physical and mental factors on the size of the thyroid has been emphasized by some of the objectors (fright, nervousness, winter season, school festivals); other objectors state that more reliable results would be obtained by closer study of a smaller number in cooperation with the family physician. Certain physicians protest that giving iodin under these conditions by the public health authorities amounts to an illegal practice of medicine. A further objection is that the class of girls selected for the test are the very ones most likely to have been already treated prophylactically by the family physician. The Hunziker method of estimating the size of the thyroid was advocated by many, instead of the method proposed.

Personal.—Dr. Mary Lucas-Keene has been appointed to the chair of anatomy at the London School of Medicine for

Women in the University of London. The *Lancet* says it is the first chair of anatomy to be held by a woman.——Professors Ferrari, Levi and Medea are the acting presidents of the newly founded Italian League for Mental Hygiene. The headquarters are at the Istituto di Igiene ed Assistenza Sociale at Rome.——A banquet was tendered Dr. Arce, rector of the University of Buenos Aires, by the organized profession at Madrid, after the Seville medical congress.——The University of Paris conferred an honorary degree on Professor Ramón y Cajal of Madrid at its recent annual exercises, the dean of the medical faculty reciting Cajal's achievements. The *Archivos de Medicina* comments that "the Spanish race has never produced another brain like that of Cajal's, a pioneer in a new field of science."——Dr. Helpach, who has been minister of the interior for Baden for some time, has been elected president of the state of Baden. He was formerly editor of the organ of the Leipzig League, now the Hartmann League, which has welded the profession in Germany into a solid unit.

Deaths in Other Countries

John F. W. Tatham, formerly superintendent of statistics, General Register Office, London, and medical officer of health of Manchester, Nov. 8, 1924, aged 80.——**J. B. Hellier,** emeritus professor of obstetrics, University of Leeds, England, Nov. 8, 1924, aged 71.——**George E. Haslip,** formerly treasurer of the British Medical Association, Nov. 12, 1924, in London, England, aged 60.

Government Services

Veterans' Bureau Hospital at San Francisco

Contracts for the construction of a 232 bed hospital at San Francisco, to cost approximately $1,000,000, have been awarded by Director Hines of the Veterans' Bureau. The North Pacific Construction Company of Los Angeles was given the general construction contract on its bid of $755,900. Other accepted bids were: heating, T. E. Thomas Plumbing and Heating Company, Ogden, Utah, $58,221; plumbing, J. M. Eustace, Los Angeles, $111,962; electrical, Gans Bros., Inc., Los Angeles, $56,730. Fifteen bids for general construction were opened, the next lowest being $22,000 higher than the accepted bid, and the highest being $230,400 in excess. Plans for the hospital were drawn to permit enlargement to 1,000 beds.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Dec. 13, 1924.

Aeroplanes as Disease Carriers

At a meeting of the Society of Medical Officers of Health, the president, Air Commodore David Munro, spoke on aeroplanes as disease carriers. After showing how epidemics in the past had followed trade routes, he pointed out that, with the advent of the aeroplane, places had been brought so much nearer that persons possibly infected could be isolated only by means of wireless communication, which would give the air port authorities time to act. When cholera broke out recently in Irak, special precautions had to be taken, and were successfully taken to prevent cholera being introduced into Egypt. The position of India in connection with yellow fever was of particular importance, because, while yellow fever did not exist there, all the conditions of its propagation were present, notably the necessary parasitic carrier, the stegomyia mosquito. At present the nearest endemic source was so far away that there was no patient in the incubation period of the disease who would not develop it *en route*, and thus come under observation and treatment; thus the requisite protective measures could be taken, and no infected mosquito could survive the journey. But if there were an airship line between India and Africa, and this might not be many years ahead, taking hours instead of days, the danger would become very real. Yellow fever was an example, but instances could be multiplied, and it was possible to envisage new pastures for the trypanosome, now so restricted in the area of its ravages.

An example nearer home was the recent introduction of rabies into England, he believed by the importation of a rabid dog in an aeroplane. The cost involved had been considerable, and the muzzling order had to be put in force in many counties. Anything dropped from the aeroplane did not seem to constitute a danger to health, as the influence of gravity in the fall reduced semisolids to a finely divided state. This had been proved by throwing overboard eggs, which disappeared into fine egg rain before they reached the ground.

Exclusion of Married Women Physicians by London County Council

The London County Council considered a report from its general purposes committee on the subject of employment of married women physicians. Before 1916, women physicians were required to resign their appointments on marriage, but in that year the council authorized, as a temporary expedient during the war, the employment of married women. Under this resolution, authority was given for the employment of married women as temporary medical assistants, when no suitable unmarried women were promptly available. The number of women physicians at present employed in the public health department is thirty-four, of whom seventeen are part-time officers. Three of these are married. In 1921, out of thirty-one women physicians employed, five were married. The committee has reported that it sees no reason for according to women physicians treatment different from that granted to other members of the staff. It recommends that the rule of exclusion be restored, but that an exception should be made in the case of the married women physicians who are already in the service of the council and who have had valuable experience of school medical work. An amendment asking the committee to consider whether the standing orders should be altered so that women physicians should not resign on marriage was defeated by a vote of 59 to 27, and the recommendation of the committee was agreed to.

The Smoke Nuisance

Smoke, its cause, nature, effect and methods of prevention, was the subject of the Chadwick lecture delivered by Prof. Julius Berend Cohen. He said that soot from factory chimneys was very different from that from domestic fireplaces. Owing to the high temperature and strong draft, the volatile portions of the coal were mainly consumed, while the draft carried off mechanically fine mineral dust and grit mixed with carbon containing a little tar. It was this tar which caused the soot to cling, accumulating with time, and blackening every surface it touched with a varnish that was not removed by rain. Vegetation suffered in several ways, for the normal growth of plants depended on light falling on the leaves. Again, the plant was affected by the acid soot and also from the sulphur acids, which passed into the air from burning coal and were washed down by rain. The effect of this acid was to corrode the leaf, which withered and fell much earlier in and near a town than in the country. Moreover, the acid percolating through the soil destroyed certain organisms and enzymes concerned in the assimilation of the soil constituents, and many grasses, vegetables and flowering plants succumbed. Even the color of flowers was affected. Historic and beautiful buildings all over the country were undergoing slow but certain destruction. Fabrics, leather bindings and metal work were being simi-

larly attacked. What was the remedy? So far as factory smoke was concerned, the Public Health Act of 1875 gave powers to the local authorities to stop unnecessary smoke, and ample evidence was forthcoming before the Committee on Smoke Abatement that boiler chimneys need not smoke. A strict enforcement of these powers would stop the great bulk of factory smoke. It was difficult to legislate for the domestic fireplace. Fortunately, gas and electricity were coming more and more into prominence for cooking and heating.

Physicians and Broadcasting

At the general medical council, the executive committee appointed to consider the question of broadcasting as it might affect physicians made the following recommendation: Any registered medical practitioner who delivers a public address on a professional subject for the purpose of broadcasting to a lay audience, or who, in connection with any such address, permits his name to be publicly announced, renders himself liable to a charge of advertising for the purpose of attracting patients or otherwise promoting his own professional advancement. Such a charge might properly be the subject of an inquiry by the council. When, in the interest of the education or information of the public, it is desirable or necessary that subject matter concerning medicine or public health be broadcast, it should be approved by the ministry of health or the Scottish board of health and vocalized by a person authorized by the ministry or by the board, as the case may be.

Honor to Sir James Mackenzie

Sir James Mackenzie, M.D., F.R.S., LL.D., has been awarded the Charles Mickle fellowship prize (value, $1,500) of the University of Toronto as a recognition of his distinguished work in medicine and medical science. This fellowship is awarded annually to that member of the medical profession who is considered by the council of the University of Toronto Faculty of Medicine to have done most during the preceding ten years to advance sound knowledge of a practical kind in medical art or science.

Increase of Smallpox

A smallpox outbreak in the midlands is assuming threatening proportions. More than 100 patients have been removed to hospitals in the Ashton-under-Lyne district. The medical officer to the Middlesbrough Corporation reported that only two wards of the town were now free of the disease. Because of the neglect of vaccination, this "march of smallpox" throughout the country has long been foreseen.

The Future of Medicine in India

The grave problem of the future of medicine and the medical profession in India was discussed by Major-General Sir Gerald G. Giffard of the Indian Medical Service, in a paper read before the East India Association. He first referred to some noticeable differences existing between the medical profession in Great Britain and that in India. In India, medicine is practically a government department. Almost all the physicians are or have been government servants; the public health service is almost entirely a government concern, and nearly all the medical schools and hospitals are government institutes. In the second place, the existence of inferior and imperfectly trained physicians (the subassistant grade) is officially recognized and tolerated; there are thousands of physicians who, although trained in government medical colleges, have received so short and imperfect a medical education that they are not admitted to the British register. In the third place, the Indian Medical Service is primarily military, as is also the Indian Medical Department. The needs of the army have therefore largely dominated the civil medical service. In the fourth place, financial and other support is given to the indigenous Ayurvedic and Yunani systems—those medicoreligious vestiges of such knowledge as was available to the world one or two thousand years ago. The viceroy and some of the provincial governors have lent their support to these systems; Indian politicians almost unanimously encourage them; and local governments, since the reforms, have voted money for their institutions and subsidized their physicians. Sir Gerald Giffard drew a dark picture of the state of medical education and of medical practice generally. Some of the medical schools in India, he said, are shamefully inefficient, ill equippel, and badly staffed. And as regards treatment, although there is at headquarters towns a more or less satisfactory hospital, the remainder of medical relief—the greatest part—is limited to hundreds of small dispensaries without beds, or with from two to ten beds scattered over the land. These deal with many thousands of outpatients, while their medical staff consists merely of a subassistant surgeon, who has been imperfectly trained as a student, is left with hardly any postgraduate teaching, and often becomes little better than the village practitioner and the quacks by whom he is surrounded. It is deplorable that the only exponents of Western medicine to the great bulk of the people of India should be imperfectly educated, poorly paid, and isolated men, working in imperfectly equipped institutions far away from the comradeship of their professional brethren. If any improvement is to be introduced in these conditions, it would appear that it can be only by the instrumentality of European physicians. The future of medicine in India will largely depend on the advent of Indian medical discoveries, but up to the present Indians have shown hardly any aptitude for medical research. The great discoveries in tropical medicine have all been made by Europeans, and it would seem that further progress is dependent on European cooperation. The grant of self-government to India raises the question whether Europeans are to form any part of the government civil medical services in the future. If political India is to decide this question, they will not.

BUDAPEST

(From Our Regular Correspondent)

Nov. 23, 1924.

Treatment of Tabes Dorsalis and General Paralysis

Dr. Ernest Frey, professor of mental and nervous diseases at the University of Budapest, has made extensive experiments with the new methods of treating tabes and general paralysis, and has published his experiences in a dissertation, which may be thus summarized: The latest investigations made by syphilologists have confirmed the fact that the treatment of syphilis must aim at fighting against the development of a positive Wassermann reaction. As a result of this treatment, the intruding spirochetes will perish, and there will be no danger of a latent nest of spirochetes becoming active, invading the organism and eventually causing tabes or general paralysis. Therefore, the application of energetic antisyphilitic treatment is imperatively indicated. This may be done with mercury, arsphenamin or iodids.

Mercury has proved most efficacious, in incipient cases of tabes or general paralysis, in the form of inunctions. It is advisable to apply 3 or 4 gm. of the ointment daily, proceeding up to the consumption of between 120 and 160 gm. The course has to be repeated after the lapse of three or four months. In the meantime the application of potassium iodid internally might advantageously influence the cure. Such series have to be continued for at least two years. If we see, however, that such energetic treatment debilitates the patient, we have to abandon the inunctions, and instead of this apply the much milder acting mercury-arsenic treatment. Dr. Frey

has seen good results in many cases from this treatment, and also a good many instances of so-called "healing with defects." If the patients do not support mercury at all, he dispenses with it and administers iodid treatment only.

In cases of advanced tabes, the application of inunctions is not to be recommended because it renders the broken-down organism still less resistant. In such cases, if we want to apply mercury at all, we have to avail ourselves of the milder acting mercury-arsenic preparations. Of course, we must have due regard to the general restoration of the patient, nourishing him abundantly.

Much more important in the treatment of tabes is the question of whether or not to administer arsphenamin, and if we do apply it, to what extent and how. Arsphenamin, as generally known, is a very strong spirillicide drug. Nevertheless, its administration is connected with many dangers, as are all strongly active drugs. Such a danger is that besides its spirillicide action it brings about changes in the biology of the spirochetes, as it destroys the weaker strains while it stimulates the more resistant spirochetes. This holds true especially for deficient treatment with arsphenamin, which is much more detrimental than no treatment at all. Therefore the method of giving one or two injections of arsphenamin at a time, repeated at half-year intervals, is to be condemned. If we resort to arsphenamin treatment at all, the injections should be made at five to seven day intervals, from eight to ten injections in one course, in doses not greater than 0.45 gm., and altogether not more than 3 gm. Such treatment may be repeated two or three times at intervals of five or six months. There is just as great harm in giving too much of this drug as too little, for it is apt to produce changes in the blood vessels, and later may lead to extensive, even lethal, cerebral hemorrhage. Frey applies arsphenamin, as a rule, only with tabetic patients who have been insufficiently treated with it, or who have received none at all, up to the appearance of tabetic symptoms. In such cases the combined treatment with mercury and arsphenamin may lead to fairly good results.

A notable method of applying arsphenamin in tabes is American in origin, and consists of giving one weekly arsphenamin injection for 100 weeks. The author gave this method a thorough trial, and found it very efficacious because all the patients could follow their vocation. The intraspinal injection of arsphenamin seems rational too; this consists of administering from 4 to 5 mg. of arsphenamin intraspinally. A great advocate of this method is Professor Gennerich, who applies twenty or thirty injections in succession. On the other hand, considering the fact that arsphenamin in such small doses has little or no effect on the spirochetes and that if applied intraspinally in larger doses it may lead to severe poisoning we should avoid this treatment, the more so because the patient objects to fifteen or twenty intraspinal injections.

In the treatment of general paralysis almost the same rules held true, as regards the application of mercury and arsphenamin, as in tabes. Arsphenamin must be administered with even more care. In cases in which, prior to the occurrence of general paralysis, the patient had received no antisyphilitic treatment whatever, Dr. Frey has seen good results from the combined treatment with mercury and arsphenamin, and in a few cases he had observed an entire remission. It was a pity that the remission was of brief duration. There are cases in which remission sets in without treatment. Researchers have sought other methods which might produce better results. It has particularly struck some investigators that patients suffering from general paralysis, when getting incidental feverish states, have shown considerable improvement and a remission has set in. This experience has led to the discovery of the method of causing fevers artificially, in order to stop the process of general paralysis and eventually to cure it. This assumption is the basis of the treatment of general paralysis with injections of various nonspecific preparations. Noteworthy results have not been achieved with this method either. More recently, Professor Wagner-Jauregg in Vienna has inoculated malaria plasmodia and typhus bacilli into his general paralysis patients. He reports quite satisfactory results. In Dr. Frey's clinic the results were not quite satisfactory either with malaria inoculation or with the protein preparations. The experiments, however, are not completed yet, so that he cannot give a definite judgment about the method, the more so as it is his wont not to assert himself about anything before applying it in at least a hundred cases.

What is a Secret Medicine?

There is a "turnover" tax in Hungary, which is payable also on medicaments. The regulations make a distinction between medicines concocted or mixed by pharmacists, specialties made by pharmaceutical manufacturers and sold only by the pharmacists, and secret medicines. The tax is lowest on the first and highest on the latter. From the point of view of determining which specialty is a regular medicine and which a "secret medicine," it was necessary to define a secret medicine. The regulation defines it as follows: Under secret medicine such materials or preparations are to be understood which are alleged to avert, cure or mitigate any disease, suffering or deficiency, or to increase or decrease certain bodily capabilities, if: (1) their composition, qualitatively and quantitatively, is kept a secret from the buyer; (2) their regular use could be detrimental to health, or it deters the user from employing actually valuable medicines or availing himself of efficacious medical help, and (3) the advertising or publishing of the drug is apt to cause misunderstanding, or to exploit the purse of the patient.

BERLIN

(From Our Regular Correspondent)

Dec. 6, 1924.

Federal Legislation to Control the Sale of "Patent Medicines" or Secret Remedies

On the basis of investigations and a report submitted by the federal public health service, the federal council recently adopted a more extensive list of "patent medicines" or secret remedies. In this list a number of remedies have been incorporated that, during recent years, have been brought to the attention of the public by widespread publicity propaganda, notwithstanding the fact that they have been strongly opposed by the authorities and the medical press. The *Deutsche medizinische Wochenschrift* in a recent issue gives advance information concerning certain of these remedies. The publication of the complete official list will be made shortly. At the head of the list is the proprietary Rad-Jo, which is known also in America; renaszin, visnervin and venezin follow. It is noteworthy that all remedies that claim to cure drunkenness, and all remedies that are supposed to operate against the interruption of menstruation, are put in the list as a matter of principle. The latter remedies are used by women mainly for the promotion of abortion, although, as a general rule, they are ineffective. On the basis of the decree of 1907, remedies that are included in the official list of "patent medicines" may be sold only in pharmacies but not in ordinary drug stores or other shops. When sold in pharmacies, the following regulations apply: The containers of these remedies, together with the outside wrappers, must bear on them in plain letters the name of the remedy and that of the manufacturer. Except when sold at wholesale, the name of the retailer and the price at which the preparation is sold

must also appear on the package. Testimonials, recommendations, confirmations of therapeutic results, expressions of gratitude and the like, in which a therapeutic or protective effect is ascribed to the remedy, may not be found on the containers or the wrappers, nor may they be handed out along with the remedy. The pharmacist is under obligations to inform himself as to whether or not the regulations concerning the dispensing of powerful medicinals apply to a given "patent medicine." The listed remedies may be dispensed only in accordance with a dated and signed prescription of a physician, dentist or veterinarian. A prescription may not be refilled without the endorsement of the physician. Furthermore, remedies that may be dispensed only on a physician's prescription must bear on the outside wrapper a label plainly setting forth that fact. Public announcements or recommendations of the listed remedies are prohibited. After many years' trial, it has been found that these regulations restrict to a considerable extent the sale of the listed preparations, although they are not entirely suppressed.

Attitude of Physicians Toward Social Insurance

In view of the continued attacks of the health insurance societies and in the face of the socializing endeavors of the bureaucracy of the *Krankenkassen*, the executive committee of the Leipzig league of physicians (the Leipziger Verband) took occasion to summon the representatives of the local chapters of the league to Leipzig, where an extraordinary session was held. At this meeting it was clearly brought out that the accusation made against German physicians that they are in principle opposed to social insurance is unjustified. The following resolution was accordingly drawn up:

The council of the Hartman league of German physicians hereby declares, in complete harmony with the resolutions of the last session of the German medical convention, that German physicians today, as in the past, are ready to collaborate wholeheartedly in the great work of German social insurance. The council, however, is sure that it expresses the convictions of the German medical profession when it utters the opinion that relations as now existing between the physicians and the health insurance societies cannot continue much longer, and therefore commissions the executive officers of the league, in agreement with the German Aerztevereinsbund, to work out at once a new set of proposals, with a view to securing professional freedom for German physicians, while they continue to serve the cause of social insurance. If, while this is being accomplished, plans for the systematic distribution of physicians throughout the whole extent of German territory, and, finally, the introduction of the system of free choice of physician should meet with irresistible opposition at the hands of the federal committee, the council demands the repeal of the decree of Oct. 30, 1923, regulating the relations of the physicians and the health insurance societies, and in preparation for such action the council recommends a publicity campaign in order that the public may be informed concerning the motives that have actuated physicians in their conduct.

Marriages

JEFFERSON CUMLEY PENNINGTON, Brooklyn, to Dr. Edna Scott of Jamestown, N. D., at New York, Nov. 25, 1924.

ALEXANDER DOUGLAS MARTIN, St. Mary's, Ont., Canada, to Miss Eva MacLaren of Warren, Pa., Dec. 1, 1924.

JOHN OGLE WARFIELD, JR., Baltimore, to Miss Rachael Elizabeth Baldwin of Kingsville, Md., Dec. 16, 1924.

HORACE C. KINZER, Lancaster, Pa., to Miss Clara B. Walmer of Hummelstown, Nov. 10, 1924.

MARTIN H. HOFFMANN of Dyersville, Iowa, to Miss Margaret Bosley of Detroit, Oct. 1, 1924.

CHARLES W. MCPHERSON, Burlington, N. C., to Miss Hallie Ray of Spencer, Nov. 26, 1924.

GEORGE G. HARVEY to Miss Ruth Almaretta Whipple, both of Springfield, Ill., recently.

EDWARD EVERETT EVANS to Miss Iva Lemley, both of Gary, Ind., Nov. 6, 1924.

NORMAN E. SNYDER to Miss Emma Eby, both of Lancaster, Pa., recently.

JOHN C. GABLE to Miss Arelda Brillhart of Windsor, Pa., recently.

Deaths

Joseph Pettee Cobb, Chicago; Hahnemann Medical College, Chicago, 1883; adjunct professor, 1889-1893, professor of physiology, embryology and histology, 1893-1898, senior professor of pediatrics since 1898, president and formerly dean at his alma mater; on the staff of the Chicago Memorial Hospital (formerly the Hahnemann Hospital); at one time president of the American Institute of Homeopathy; aged 67; died, Dec. 23, 1924, of uremia, following nephritis and heart disease.

Conrad Epping Koerper ⊕ Lieutenant Colonel, U. S. Army, retired, Washington, D. C.; University of Pennsylvania School of Medicine, Philadelphia, 1901; member of the Washington Society of Ophthalmologists and Otologists; served in the Philippine Islands, Cuba and as chief surgeon of the Eighty-Second Division in France during the World War; was retired for physical disability in 1921; aged 47; died suddenly, Nov. 28, 1924, at the Walter Reed General Hospital.

Philander Abbey Harris ⊕ Paterson, N. J.; University of Michigan Medical School, Ann Arbor, 1872; Medical Department of Columbia College, New York, 1873; member of the American Gynecological Society; for thirty-two years on the staff of the Paterson General Hospital; aged 72; died, Dec. 13, 1924, following a long illness.

William Francis Barry ⊕ Woonsocket, R. I.; College of Physicians and Surgeons, Baltimore, 1893; president of the Rhode Island Medical Society; for twenty-five years member of the school board; author of "Hygiene of the School Room"; aged 52; died suddenly, Dec. 17, 1924.

John Risk Meek, Cincinnati; Medical College of Ohio, Cincinnati, 1907; member of the Kentucky State Medical Association; on the staff of the Booth Memorial Hospital, Covington, Ky.; aged 45; died in December, 1924, of a skull fracture, received in automobile accident.

Isaac Marion Harrison, Seattle; University of Michigan Medical School, Ann Arbor, 1880; member of the Washington State Medical Association; member and at one time president of the board of health; aged 68; died, Nov. 24, 1924, of cerebral hemorrhage.

Harris W. Millikan, Whitestown, Ind.; Physio-Medical College of Indiana, Indianapolis, 1884; formerly professor of surgical anatomy at his alma mater; aged 65; was killed, Dec. 14, 1924, when the automobile in which he was driving was struck by a train.

Claudius B. Kinyon, Trenton, Mich.; Chicago Homeopathic Medical College, 1878; formerly professor of gynecology and obstetrics at the University of Michigan Homeopathic Medical School, Ann Arbor; aged 73; died, Dec. 21, following a long illness.

Robert Roy Keeble, St. Louis; Marion-Sims College of Medicine, St. Louis, 1894; member of the Missouri State Medical Association; on the staffs of the Missouri Pacific and St. Louis Baptist hospitals; aged 50; died, Dec. 2, 1924.

George L. Tiffany, Birch Run, Mich.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1891; member of the Michigan State Medical Society; aged 66; died, Dec. 8, 1924, at the Woman's Hospital, Saginaw, of heart disease.

Christian F. Kapp, Manchester, Mich.; Cincinnati College of Medicine and Surgery, 1876; formerly member of the school board; president of the Union Savings Bank; aged 78; died, Dec. 7, 1924, following a long illness.

John G. Reed, Elmwood Place, Ohio; Cincinnati College of Medicine and Surgery, 1876; formerly demonstrator of anatomy at his alma mater; aged 71; died, Dec. 10, 1924, at the Jewish Hospital, Cincinnati.

Enos G. Burton ⊕ Lima, Ohio; Medical College of Ohio, Cincinnati, 1871; past president of the Allen County Medical Society; formerly city health officer; aged 78; died, Dec. 7, 1924, of pneumonia.

Herbert Frank Pitcher ⊕ Haverhill, Mass.; University of Vermont College of Medicine, Burlington, 1879; past president of the American Electro-Therapeutic Association; aged 71; died, Oct. 28, 1924.

Zeran Lewis Merritt, Bolton, N. C.; Tulane University of Louisiana School of Medicine, New Orleans, 1923; intern, James Walker Memorial Hospital, Wilmington; aged 26; died, Dec. 5, 1924.

⊕ Indicates "Fellow" of the American Medical Association.

William H. Cook, Choudrant, La.; Cincinnati College of Medicine and Surgery, 1889; member of the Louisiana State Medical Society; died suddenly, Nov. 24, 1924, of cerebral hemorrhage.

John Marshall Willoughby Farnham ✠ Worcester, Mass.; Medical School of Harvard University, Boston, 1895; on the staff of the Worcester City Hospital; aged 56; died, Nov. 26, 1924.

Robert Given Stanwood, Madison, Me.; Medical School of Maine, Portland, 1878; on the staff of St. Michael's Hospital, where he died, Nov. 16, 1924, of cerberal hemorrhage, aged 70.

Andrew Thaddeus Barstow, Boston; Tufts College Medical School, Boston, 1906; member of the Massachusetts Medical Society; aged 52; died, Nov. 29, 1924, at Templeton.

John F. Taylor, Sharps Chapel, Tenn.; Lincoln Memorial University Medical Department, Knoxville, 1908; aged 51; died, Oct. 23, 1924, at a hospital in Knoxville.

Albert H. Carpenter, Lansing, Mich.; Hering Medical College, Chicago, 1896; formerly city health officer; aged 71; died, Dec. 11, 1924, at St. Lawrence Hospital.

Cyrus Finley King, Mount Cory, Ohio; Eclectic Medical Institute, Cincinnati, 1878; formerly mayor of Mount Cory; aged 69; died, Dec. 5, 1924, of heart disease.

Andrew Harrison Allen ✠ Watertown, N. Y.; Long Island College Hospital, New York, 1879; formerly health officer of Watertown; aged 69; died, Dec. 4, 1924.

William Jacob Nellis, Albany, N. Y.; Albany Medical College, 1879; member of the Medical Society of the State of New York; aged 69; died, Dec. 9, 1924.

Isaac Norval Baker, Whitacre, Va.; Georgia College of Eclectic Medicine and Surgery, Macon, 1884; Confederate veteran; aged 82; died, Dec. 8, 1924.

William E. Mansur, Pasadena, Calif.; Hahnemann Medical College and Hospital, Chicago, 1899; formerly a practitioner in Wisconsin; died, Nov. 1, 1924.

Henry Frederick Thies, Audubon, N. J.; Chicago College of Medicine and Surgery, 1905; aged 42; died, Dec. 15, 1924, of pneumonia, at Philadelphia.

Frederick T. Hiner, West Lafayette, Ind.; Jefferson Medical College of Philadelphia, 1877; aged 70; died, Dec. 12, 1924, following a long illness.

August E. Englehardt, Glendora, Calif.; Physio-Medical Institute, Cincinnati, 1884; aged 68; died, Nov. 19, 1924, of acute dilatation of the heart.

George Wilbur Harvey, Durham, Calif.; California Eclectic Medical College, Los Angeles, 1894; aged 61; died, Nov. 9, 1924, of heart disease.

Josiah J. Myers, Berwick, Pa.; College of Physicians and Surgeons, Baltimore, 1886; aged 64; died, Dec. 8, 1924, at Clifton Springs, N. Y.

Robert Henry Keyes, Hopedale, Ill.; College of Physicians and Surgeons, Keokuk, 1883; aged 62; died, Dec. 11, 1924, of cerebral hemorrhage.

Robert Richard Chapman ✠ Bridgewater, Iowa; Rush Medical College, Chicago, 1894; aged 55; died, Dec. 12, 1924, of cerebral hemorrhage.

Eugene Theodore Pleible ✠ Philadelphia; Jefferson Medical College, Philadelphia, 1896; aged 60; died, Dec. 5, 1924, of chronic nephritis.

William Ray Hodge, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1915; aged 34; died, Nov. 21, 1924, of pneumonia.

Charles Nathan Skinner ✠ Port Jervis, N. Y.; Bellevue Hospital Medical College, New York, 1892; aged 58; died, Dec. 5, 1924.

Thomas M. Fife, Millvale, Pa.; Western Reserve University School of Medicine, Cleveland, 1871; aged 75; died, Dec. 6, 1924.

Elijah M. Rotramel, West Frankfort, Ill. (licensed, Illinois, 1878); aged 81; died, Dec. 27, 1924, of carcinoma of the stomach.

William A. Jones, Wichita Falls, Texas (licensed, Texas, 1909); aged 55; was killed, Nov. 22, 1924, in an automobile accident.

John S. Kings ✠ Milwaukee; Detroit (Mich.) College of Medicine and Surgery, 1897; aged 51; died, Dec. 8, 1924.

Orgie Rice Duncan, Fordtown, Tenn. (licensed, Tennessee, 1899); aged 52; died, Nov. 28, 1924, of pneumonia.

Malcolm McColl ✠ Detroit; Detroit College of Medicine and Surgery, 1894; aged 67; died, Dec. 8, 1924.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

HOYT'S GLUTEN FLAKES NOT ACCEPTED FOR N. N. R.

Report of the Council on Pharmacy and Chemistry

The report which appears below was sent to the manufacturer of the product under consideration. The manufacturer's reply carried no assurance that the objections to the product would be removed, but did refer to a preparation containing a smaller amount of carbohydrate which it was claimed had been developed. The Council, therefore, directed publication of the report which appears below with the explanation that the firm promised that an article containing a smaller amount of carbohydrate was to be marketed. However, while the statement that an improved product was to be marketed was received more than a year ago (December 10, 1923), a specimen received from The Pure Gluten Food Co. in October, 1924, did not differ materially in composition from that reported on below. W. A. PUCKNER, Secretary.

Hoyt's Gluten Flakes (The Pure Gluten Food Co., New York) is marketed as a ready-to-eat gluten preparation. The claims are made that it is "A perfect gluten," that it contains "40 per cent. Protein" which is asserted to be the Government Standard for gluten, and that it is "free from starch." No statement of its carbohydrate content is made. These statements of composition are misleading. A product containing 40 per cent. of protein is not "a perfect gluten." The government standard for gluten flour is not 40 per cent.; that figure merely represents the minimum amount of protein to which the term gluten flour may be applied without incurring danger of prosecution by the federal authorities for misbranding.

Analysis of Hoyt's Gluten Flakes showed the product to contain 4.50 per cent. of starch; 11.98 per cent. of soluble carbohydrate, calculated as dextrose; and 18.86 per cent. of other carbohydrates, by difference. The product is, therefore, not free from starch and it contains at least 16.48 per cent. of readily assimilable carbohydrates (the sum of the determined content of starch and of soluble carbohydrates).

The trade packages and the advertising of Hoyt's Gluten Flakes contain misleading and absurd claims in regard to the effects which the product may be expected to have on nutrition and health and such claims will inevitably give the public a false dependence on it. The statement that the product is "the most nutritious food known" is untrue; fats are more nutritious when considered from the standpoint of calories per gram and dried milk would be decidedly more nutritious from the standpoint of calories, protein, vitamins and inorganic salts. The product is also claimed to be an "Ideal Food," "To reduce fat," "To make the weak strong," "To make pure rich blood," "To strengthen the digestive glands," "To avoid diabetes," "To care for elimination," and "In general to provide for the well-being of every individual." The expression "Ideal Food" is meaningless as used here; certainly gluten flour is not ideal. Instead of making "pure rich blood," the use of the preparation might lead to other consequences—all depending on whether it is used alone or with other materials. By itself it cannot be recommended as a blood-producing product. The preparation cannot be depended on to make the "weak strong"; it will not strengthen the digestive glands; it will not "avoid" diabetes, and it is absurd to claim that it will provide for the well-being of every individual.

On one form of the trade packages, there appears the statement that the preparation will "strengthen the glands"—a statement which is bound to mislead the public in view of the publicity that has been given to "gland" therapy. Furthermore, the absurd claim is made that the product is a "well balanced food." The untrue statement, "Gluten is the

most important of all nitrogenous substances, because it is capable of supporting life when given alone," and the ridiculous assertion that it "stands out among the muscle makers of Nature as The One Food Substance against which not a single vital objection can be urged," appears in a circular advertising the product.

The Council declared Hoyt's Gluten Flakes inadmissible to New and Nonofficial Remedies because (1) its composition is not correctly declared and (2) the claims for its effects on nutrition and health are unwarranted and misleading.

RESTOR VIN NOT ACCEPTED FOR N. N. R.

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report. W. A. PUCKNER, Secretary.

Restor Vin is the therapeutically suggestive name under which the Robinson-Pettet Co., Louisville, Ky., markets a mixture which is stated to have the following composition: solution of albuminate of iron, 8 pints; detannated wine of wild cherry, 12 pints; glycerin, 8 pints; elixir of calisaya, 12 pints; tincture of hydrastis, 1 pint; hypophosphorous acid, 8 ounces; solution of saccharin, 4 ounces; calcium glycerophosphate, 1 ounce; water, 16 ounces. According to the label, this mixture—typical of "shotgun" proprietaries in vogue two or three decades ago—is "a scientific, palatable preparation, recommended by prominent physicians as a Tonic and Reconstructive in all those conditions where there is a waste of tissue in progress." Since this claim is on the trade package, it may reach the public and be taken seriously. There is also the further claim on the label:

"In Derangement of the Stomach, Mal-Nutrition, Anaemia, Nervous Prostration, Affections of the Respiratory Organs, General Debility and all other troubles which require a General Tonic and Nerve Builder, this Tonic will produce beneficial effects immediately."

A Restor Vin circular contains this:

"No physician can fail to recognize in this combination the Ideal Tonic and Reconstructive. Each ingredient is the type of its class. Phosphoric Acid—Tissue Builder and Nerve Restorer. Hydrastis—Tonic to Mucous Membranes. Albuminate of Iron—Regenerator of Red Blood Cell. Calisaya—AntiMalarial, Tonic and Febrifuge. Glycerine—Antiferment and Emmolient. Sherry wine—Stimulant and Tonic."

The credence to be given the claim that in the amounts present in the mixture, phosphoric acid acts as a tissue builder and nerve restorer, that hydrastis is a tonic to mucous membranes and that calisaya, is anti-malarial and febrifuge, may be judged when it is considered that the preparation is not claimed to contain phosphoric acid, but the unabsorbable hypophosphorous acid.

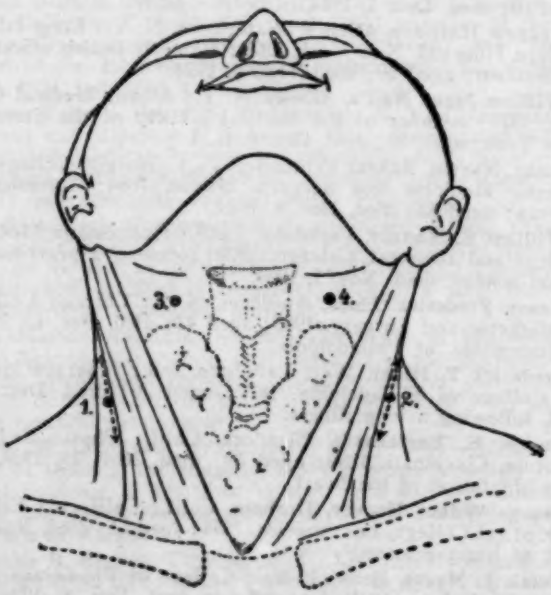
Restor Vin is inadmissible to New and Nonofficial Remedies because it is an unscientific combination of drugs, marketed under a therapeutically suggestive name and with unwarranted therapeutic claims that may lead the public to depend on this "cordial" in serious conditions.

Correspondence

PARAVERTEBRAL ANESTHESIA AND LOCAL ANESTHESIA FOR THE TRIANGLES OF THE NECK

To the Editor:—I have been requested by Dr. H. Braun of Zwickau to make known to English readers of his work on local anesthesia certain changes in technic that have been evolved in his service. The request comes, no doubt, because I was responsible for the translation into English. In the book, the method for paravertebral anesthesia used for producing anesthesia of the neck has proved to be dangerous and therefore inapplicable. Another method suitable for all operations in the anterior and lateral triangles of the neck has been substituted for it. In an operation on the larynx, an additional injection is made in the thyrohyoid ligament in order to block the superior laryngeal nerve. The following is the technic of local anesthesia in operations in the neck described by Prof. Dr. D. Kulenkampff (*Zentralbl. f. Chir.* **48**:1262 [No. 35] Sept. 3, 1921).

"Härtel and Geiger showed how to block the cervical plexus at the third and fourth transverse processes of the cervical vertebrae without injecting the line of incision subcutaneously. I recommended that the injection be made not on or behind the transverse processes, but in front of them. The anesthesia thus produced is very satisfactory, but serious complications have followed the method. As these complications are experienced only in paravertebral anesthesia it is quite unlikely that the vagus and sympathetic are concerned in their production, particularly since they have been observed in paravertebral anesthesia in the dorsal region, but not in blocking of the brachial plexus. It may be that the cause of the disturbances is not always the same, but in any event it seems to us so probable that the effects are the



Location of wheals.

result of absorption by the spinal cord that we have followed the suggestion 'away from the spinal column' throughout the whole body.

"Härtel believes that the disturbances may be avoided by introducing the needle behind the transverse processes of the cervical vertebrae, but the identification of the transverse processes in short, thick necks is very difficult. It appears to us advisable, therefore, to discontinue paravertebral anesthesia not only in the back, but also in the neck. It is important to return to former methods by which it was thought to produce conduction anesthesia at the posterior border of the sternocleidomastoid muscle at a point that I have designated 'the external junctions point.' Härtel has rightly criticized this old method as not producing anesthesia of the deep parts. According to our observation, it is probably the sensitive nerve fibers that reach the field of operation along the superior thyroid artery that are not blocked. It has occurred to me at different times after Härtel's injection that ligation of this artery was painful. Occasionally, patients have complained of shooting pains to the teeth and ear. This never happened when the fluid extended into this region after injection in front of the transverse processes. It seems to me most probable that these nerves have their origin in the upper cervical nerves that occasionally are not involved in the Härtel injection. Perhaps they follow the sympathetic

plexus that surrounds this artery. Nothing is known, so far as I am aware, of their connection with the trigeminus. In any event, it is necessary to block these nerves. This is accomplished by the following method, which we have used with excellent success in a number of operations on the thyroid and other parts of the neck; namely, injection at both external junction points and at both superior thyroid arteries.

"The injection is made in the following manner: As the accompanying illustration shows, four wheals are made: 1 and 2 at the middle of the posterior border of the sternocleidomastoid muscle at about the point of crossing of the external jugular vein. Wheals 3 and 4 vary somewhat in their location, according to the development of the superior pole of the thyroid. They are placed somewhat above the point at which in thin persons one usually feels the artery pulsate. This point usually lies 1 cm. outside of and 1 cm. below the lateral border of the body of the thyroid bone. The lateral junction point is not a fixed point. The nerves divide on a plane that corresponds nearly to the middle third of the sternocleidomastoid muscle. Therefore through Wheals 1 and 2 a subfascial and subcutaneous injection of about 30 c.c. of a 0.5 per cent. procain-epinephrin solution is made extending about 2 cm. above and the same distance below the points. At Wheals 3 and 4, the needle is now passed perpendicularly through the skin and fascia into the loose connective tissue which surrounds the artery, and 10 c.c. of a 0.5 per cent. solution is injected on either side. The injection is now finished and anesthesia is complete. Only in unusually long thyroid operations will sensation have returned when the skin is being sutured. Occasionally a patient will complain when the inferior thyroid artery is ligated, but usually the anesthesia is complete here also. In very large strumas with the vessels of the neck crowded back of the border of the muscle, care must be exercised not to puncture them with the needle." M. L. HARRIS, M.D., Chicago.

[NOTE.—The method referred to by Prof. Dr. Kulenkampff was described by Dr. M. L. Harris in the Surgical Clinics of Chicago for April, 1917, and may be found there fully illustrated.—ED.]

"DRAINAGE OF APICAL ABSCESSES OF TEETH"

To the Editor:—In Queries and Minor Notes (THE JOURNAL, Dec. 13, 1924) appears an answer to the question regarding drainage of apical abscesses of the teeth. I wish to congratulate you on the last paragraph of your answer. Nobody is too good a man for his town. What is needed mostly in this country is good doctors and dentists in the smaller towns and cities. As soon as a man begins to keep abreast of the times in a small place some one is always advising him that he is too big a man for his town. This often has the tendency to make him move to the larger centers where he is not needed, and the smaller place loses a useful citizen. Let doctors and dentists remember the old Methodist hymn that is sung here at times, "Brighten the Corner Where You Are."

R. A. DUNCAN, M.D., Graham, Texas.

To the Editor:—I have read the answer on drainage of apical teeth abscesses, which interested me very much, believing, as I have for several years, that something should be done to curb the needless sacrifice of every tooth that an enthusiastic dentist thinks is infected, and should come out. I am consulted every week by some person who desires me to say what he or she should do relative to a dentist's advice to have certain teeth extracted. Recalling the writing of Dr. Benjamin Rush more than 100 years ago plus more than thirty-five years' practice of medicine, I am constrained at times to suggest "going slower"; but, as you know, it is a dangerous thing for a physician past 50 to make such suggestion. It makes him liable to be termed "good man, but a *leetle* behind the time." This I fear constrains some good doctors, with large and most valuable experience, from expressing honest judgments based on competent clinical findings. J. HOWELL WAY, M.D., Waynesville, N. C.

"AN UNUSUALLY LARGE GALLSTONE"

To the Editor:—In THE JOURNAL, Dec. 20, 1924, Dr. A. J. Gordon, Newark, N. J., under the title "An Unusually Large Gallstone Passed by Rectum" gives the weight and dimensions of an unusually large stone removed by Nature's surgery. Many years ago, a woman, aged 68, who was a patient of my father, had many attacks of jaundice with pain; and, finally, following an attack, passed by rectum a gallstone of the following weight and dimensions: weight, 4 drams and 27 grains (17.25 gm.); long circumference, 5¼ inches (133 mm.); circumference at right angles to its length, 3 1/16 inches (78 mm.), at largest part; length, 2½ inches (63 mm.). The patient made a good recovery, and lived to be over 90 years. I have the stone and a photograph of it.

HOWARD JONES, M.D., Circleville, Ohio.

"THE CARE OF THE VETERAN"

To the Editor:—The attention of the medical profession should be emphatically called to this subject, as discussed editorially in THE JOURNAL, Nov. 15, 1924, p. 1591. This iniquitous legislation should be repealed if possible. The objectionable paragraph is quoted in the editorial. Briefly, it provides transportation and hospitalization for all veterans *regardless of the nature or origin of their disabilities.* For the rest of their lives these men will be sent to government hospitals and treated for all their ills, venereal diseases, acute illnesses and accidents of all kinds. It is the *reductio ad absurdum* of the present tendency of our law makers to cater to the noisy minority of ex-service men. This act became a law in June, 1924. There is a Veterans' Hospital located in this city, and the number of patients increased from about fifty to 190 on the passage of this act. The majority of these men are being treated for ailments in no way connected with their military service.

There is now before Congress H. R. 10271, introduced by Mr. Johnson of South Dakota, "A Bill to amend the World War Veterans' act of 1924." The features which I choose to term the objectionable features of the bill are retained and made worse by being extended to cover specifically outpatient and dispensary treatment, including dental, medical and surgical care and prosthetic appliances.

Our county medical society (the Memphis and Shelby County Medical Society) has brought this matter to the attention of the Tennessee State Medical Association, the Tri-States Medical Association and the Southern Medical Association. Strong resolutions have been passed, but that is not sufficient. The bill last referred to is being distributed by Mr. W. B. Miller, chairman of the National Rehabilitation Committee of the American Legion, which would make it appear that the legion was behind the bill. Unless somebody takes it on themselves to protest vigorously, this bill will be passed. It is clearly the province of the American Medical Association to see that the objections of these provisions of this bill are forcibly presented to the committee that will conduct the hearings on it. These objections are that it tends to pauperize about five million Americans, most of whom are at their most productive age. It extends free

medical and dental treatment to these men, many of whom are able to pay for such services. It will impose an expense on the taxpayers before which all other items of governmental expense will seem insignificant.

It is futile to say that these men will not take advantage of the offer. They are already doing it and will do so more and more as they learn that it is theirs for the asking. Polite and lukewarm expressions and resolutions will not meet the situation. They must be forcible, frequent and of a volume to offset the noise made by the extremely noisy minority of ex-service men who are seeking to impose on the government in this and other ways. The American Medical Association is the one agency which should and can represent the profession in this matter.

This is not an attack on the ex-service men. I was in service, am a member of the American Legion, and feel sure that in this matter as well as in the bonus question, the vast majority of the ex-service men, as well as the Legionnaires, are in sympathy with the spirit of this letter.

E. C. ELLETT, M.D., Memphis, Tenn.

DIATHERMY IN EPIDIDYMITIS

To the Editor:—Prof. Carl R. Moore of the University of Chicago has recently shown that heating of the testis causes in various mammals (ram, guinea-pig) destruction of the spermatic tubules and consequent arrest of sperm production. He says, "After exposure to 47 C. [117 F.] for five minutes, the testis, at the end of five days, is devoid of tubules that approach normal ones" (*Am. J. Anat.*, Nov. 15, 1924, p. 351).

Diathermy, with the production of a much higher temperature for a much longer period than those found destructive to animal testes by Moore, has been recommended for the treatment of epididymitis in man, apparently without warning as to the possibility of damage to the underlying testis. In one case, small testes and azoospermia were subsequently noted—whether due to diathermy or other cause could not then be determined.

WILLIAM T. BELFIELD, M.D., Chicago.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

LEUCOTROPIN

To the Editor:—A prominent neuropsychiatrist recommended leucotropin intravenously in 10 c.c. doses for multiple neuritis. In more than thirty years' treating these cases, I have always believed in strychnin, hydrotherapy and the immediate withdrawal of the cause. I adhere to the remedies of the U. S. Pharmacopeia only, but many of our best men are disposed to use proprietaries. Leucotropin is manufactured by Dr. Ernest Silten, Berlin—the American agents are Morgenstern & Co.—it is put up in 10 c.c. ampules and it is stated to be a solution of cinchophen hexamethylentetraminate. As you will see by the enclosed printed circular, a similar one of which is put in each box of ampules, this preparation *"beats"* any "patent medicine" I have ever seen advertised as a "cure-all." Please write all you know about it, especially whether it has been accepted by the Council on Pharmacy and Chemistry, and whether it is as yet accepted and backed by sufficient evidence to prove that it is of real medicinal value. In a recent issue of THE JOURNAL, the articles on parathyroid therapy and on the benzyl esters confirmed an opinion I formed long ago from my experience, which is that, as yet, they are of no proved value as reliable medicinal agents.

F. F. YOUNG, M.D., Covington, La.

ANSWER.—The Council on Pharmacy and Chemistry has not considered leucotropin, nor has Morgenstern and Company requested the Council to examine the product. From the advertising, it would appear that leucotropin is claimed to be a molecular combination of hexamethylenamin and cinchophen. It is most probable, therefore, that the product will merely have the effects of its two components.

There is no warrant for the intravenous administration of hexamethylenamin, and it is difficult to believe that the intravenous use of cinchophen will give results materially different from those obtained when cinchophen is given by mouth.

A letter has been sent out by Morgenstern and Company which suggests that two doses will be sufficient to "judge the effects" of this German synthetic. This, of course, was an appeal to the uncritical.

HISTORY OF MEDICINE IN LATIN AMERICA

To the Editor:—I am trying to study the history of medicine in Latin America. Can you give me the titles of one or two books or periodical articles that will give me a start?

WILLIAM O. OWEN, M.D., Washington, D. C.

ANSWER.—The data relating to the history of medicine in Latin America are chiefly scattered through medical journals and society transactions. It must also be kept in mind that until recently the development of Latin American medicine was far from forming a harmonious whole, and in medicine as well as in other respects there was no Latin America, but Argentina, Brazil, Mexico, and so forth.

The earliest information on the subject is, of course, to be found in the old chroniclers, Las Casas, Fernández de Oviedo, Herrera, Solís, Cobo, Velasco and Garcilaso. Humboldt, in his monumental work, referred to the outstanding figures in his time. Probably the most prominent contributions to this field are those of the noted Mexican historiographer, Dr. Nicolás León, with his "Historia de la Obstetricia en México," "Apuntes para la Historia de la Medicina en México" (*Gaceta Médica de México* **55**:3 [Jan.-Sept.] 1921), containing quite a complete bibliography, and "Qué era el Matlazahuatl," México, 1919. Those veterans of medical journalism, the late Dr. Santos Fernández and Dr. Diego Tamayo, the present editor of *Vida Nueva*, have discussed the subject as regards Cuba in their numerous contributions. For other countries, there are books, such as those of Sigaúd for Brazil, Gayraud and Domecq for Ecuador and Estigarribia for Paraguay, which throw light on conditions. In Peru, the true originator of modern medical history was the statesman Dr. H. Unanue, to whose life much space was given in the *Bulletin of the Pan-American Union* when his statue was unveiled in the Hall of the Americas in 1921. His life was sketched by J. Silva Velázquez (*Crón. Méd.* **37**:336 [Oct.] 1920) in connection with the history of puerperal fever in Peru. Haller's bibliography shows that the first medical works printed in the New World were Francisco Bravo's Opera Medicinalia (1570) and Alfonso López' Sumario y Recopilación de Cirugía (1578). Fray Agustín Farfán's Tractado Breve de Medicina dates from 1592. According to Dr. León, the first American medical journal was *"El Mercurio Volante"* (Mexico, Oct. 17, 1772). Mexico can also boast of the first hospital (1524) and the first medical school (1551), although this claim is disputed by Santo Domingo with its Santo Tomás University founded in 1538. Other medical schools were organized as follows: Lima, 1551; Bogotá, 1572; Córdoba, 1613; Sucre, 1623; Guatemala, 1675; Cuzco, 1692; Caracas, 1721; Havana, 1728; Santiago of Chile, 1756; Quito, 1787; Buenos Aires, 1801; Bahia and Rio de Janeiro, 1808. It must be noted that these dates do not always represent full-fledged schools, but lectures given by one professor.

We append a recent list of references, rather suggestive than complete:

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Appreciacao Geral dos factos ocorridos no movimento sanitario desta Corte de 1830 até 1880, *Annaes Brasileiros de Med.*, Rio de Janeiro.
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Fonseca, O.: O ensino medico no Brasil, Conferencia na Bibliotheca Nacional, Oct. 20, 1916.
Penna de Carvalho, Evoluçao de Medicina No Para, *Para Med.* **2**: No. 10 (Sept.) 1922.

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Ortega, J. J.: Apuntamientos sobre la historia médico-quirúrgica del Hospital General, *Studium*, 1923.
Peña Trejo, F.: Comentario sobre el descubrimiento de la uncinariasis, 1922.
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Corpas, J. W.: *Repertorio de Med. y Cir.*, January, 1922.
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Núñez, E.: Evolución de la cirugía en Cuba, *Rev. de Med. y Cir. de la Habana*, September, 1905.
Le Roy, J.: Prensa Médica de Cuba, Actas del Cuarto Congreso Médico Nacional, p. 494, Havana, 1917.
Fosalba, R.: *Médica* **2**: 70 (March) 1922.
Fernández, F. M.: La Especialidad oftalmológica y la prensa médica en Cuba, Actas y Trabajos del 2° Congreso Méd. Nac., Havana, 1911.

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Heynert, J. F.: Anales de la Soc. Méd.-Quir. de Guayaquil, 1922.

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Flores, F. A.: La medicina entre los indios mexicanos, Mexico, 1912.

PARAGUAY

Idoyaga, V.: Lucha Antivenérea en el Paraguay, Asunción, 1921.

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Lorente, S.: Historia Antigua del Perú, Lima, 1860.
Monardes: Historia Medicinal de las Cosas.
Lavorería, D. E.: El arte de curar entre los antiguos peruanos, Tesis, Lima, 1901.
Mimbela, P. S.: Sección inaugural del curso de 1922, *An. de la Fac. de Med. de Lima*, September-October, 1922, p. 213 (brief sketch of Peruvian medical history).
Tello, J.: La antigüedad de la sífilis en el Perú, Tesis, Lima, 1908; La trepanación incaica, *Bol. del Ministerio de Fomento*, Nov. 30, 1908.
Quirós, M.: La fiebre amarilla en el Perú, *Crón. Méd.*, December, 1921.
Valdizán, H.: Médicos Peruanos, *Crón. Méd.*, July, 1922; *Locos de la Colonia*, Lima, 1919; *Locos de la Colonia*, Lima, 1919.
Escomel, E.: Ciencia y arte en la prehistoria peruana, Lima, 1920 (has a good bibliographic list on Inca trephining).
Paz, Soldán, C. E.: Las bases médico-sociales de la legislación sanitaria del Perú, 3 volumes, Lima, 1918-1920.

VENEZUELA

Tinoco y Delgado: Historia de la Medicina en el Zulia, 1896.
See also sketches of Venezuelan physicians in successive issues of the *Revista de Med. y Cir.* for 1922-1923.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALABAMA: Montgomery, Jan. 13. Chairman, Dr. S. W. Welch, Montgomery.

ARIZONA: Phoenix, Jan. 6. Sec., Dr. W. O. Sweek, 404 Heard Bldg., Phoenix.

CALIFORNIA: Los Angeles, Feb. 9-12. Sec., Dr. C. B. Pinkham, 906 Forum Bldg., Sacramento.

COLORADO: Denver, Jan. 6. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

DISTRICT OF COLUMBIA: Washington, Jan. 13-15. Sec., Dr. Edgar P. Copeland, 104 Stoneleigh Court, Washington.

HAWAII: Honolulu, Jan. 12. Sec., Dr. G. C. Milnor, 401 Beretania St., Honolulu.

ILLINOIS: Chicago, Jan. 6-8. Supt. of Regis., Mr. V. C. Michels, Springfield.

INDIANA: Indianapolis, Jan. 13. Sec., Dr. W. T. Gott, 333 State House, Indianapolis.

KANSAS: Topeka, Feb. 10. Sec., Dr. Albert S. Ross, Sabetha.

MINNESOTA: Minneapolis, Jan. 6-8. Sec., Dr. Thomas McDavitt, 734 Lowry Bldg., St. Paul.

NATIONAL BOARD OF MEDICAL EXAMINERS: Written examinations in Class A medical schools. Parts I and II, Feb. 18-20. All applications for this examination must be made on or before January 15. Sec., Dr. J. S. Rodman, 1600 Walnut St., Philadelphia.

NEW YORK: Albany, Buffalo, New York, Syracuse, Jan. 26-29. Chief, Mr. Herbert J. Hamilton, State Education Bldg., Albany.

NORTH DAKOTA: Grand Forks, Jan. 6. Sec., Dr. G. M. Williamson, Grand Forks.

OKLAHOMA: Oklahoma City, Jan. 13-14. Sec., Dr. J. M. Byrum, Shawnee.

OREGON: Portland, Jan. 6-8. Sec., Dr. U. C. Coe, 1208 Stevens Bldg., Portland.

PENNSYLVANIA: Philadelphia, Jan. 27-31. Pres., Dr. I. D. Metager, 322 Aiken Ave., Pittsburgh.

SOUTH DAKOTA: Pierre, Jan. 20. Dir., Dr. H. R. Kenaston, Bonesteel.

UTAH: Salt Lake City, Jan. 6. Dir. of Regis., Mr. J. T. Hammond, State Capital, Salt Lake City.

VERMONT: Burlington, Feb. 10. Sec., Dr. W. Scott Nay, Underhill.

WASHINGTON: Olympia, Jan. 12. Sec., Mr. Wm. Melville, Olympia.

WISCONSIN: Madison, Jan. 13-15. Sec., Dr. Robert E. Flynn, 315 State Bank Bldg., La Crosse.

Michigan June Examination

Dr. B. D. Harison, former secretary, Michigan Board of Registration in Medicine, reports the written examinations held at Ann Arbor, June 10-12, and at Detroit, June 16-18, 1924. The examinations covered 14 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 203 candidates examined, 202 passed and 1 failed. Of the 29 drugless practitioners examined, 22 passed and 7 failed. Of the 6 chiropodists examined, 4 passed and 2 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
College of Medical Evangelists		(1922)	78
Georgetown University		(1924)	85
General Medical College		(1924)	85
Northwestern University		(1924)*	86, (1924, 2) 84, 85
Rush Medical College		(1923)	82
Harvard University		(1923, 2)	83, 84.3
Detroit College of Medicine and Surgery		(1924, 3)	84, 84, (1924, 26)* 81, 82, 82, 82, 82, 82, 82, 83, 83, 83, 83, 84, 84, 84, 84, 84, 84, 84, 84, 85, 85, 86, 86, 86, 88	79,
University of Michigan Medical School		(1922) (1923, 3) 83, 83, 83.5, (1924, 123) 76, 76.9, 79.5, 81, 81, 81, 82, 82, 82, 82, 82, 82, 82, 82, 82.8, 83, 83, 83, 83, 83, 83, 83, 83, 83, 83, 83, 83, 83, 83, 83, 83.1, 83.2, 83.2, 83.2, 83.3, 83.4, 83.6, 83.6, 83.6, 83.6, 83.7, 83.7, 84, 84, 84, 84, 84, 84, 84, 84, 84, 84, 84, 84, 84, 84, 84, 84, 84, 84, 84, 84, 84, 84, 84, 84, 84, 84, 84, 84.2, 84.4, 84.5 84.9, 84.9, 84.9, 85, 85, 85, 85, 85, 85, 85, 85, 85, 85, 85, 85, 85, 85, 85, 85, 85, 85, 85.1, 85.5, 85.6, 86, 86, 86, 86, 86, 86, 86, 86, 86, 86, 86, 86, 86.1, 86.4, 86.5, 86.8, 86.8, 86.9, 88, 88, 88, 88, 88, 88, 88, †	86
Jefferson Medical College		(1923, 2)	82, 85
University of Pennsylvania		(1924)	84.9
Meharry Medical College		(1912)	75.5
University of Tennessee		(1924)	83
McGill University Faculty of Medicine		(1910) 78, (1918) (1921) 82, (1922, 2) 83, 85, (1923) 83	81,
Queen's University Faculty of Medicine		(1921)	81
University of Toronto Faculty of Medicine		(1913) 79, (1916) (1921, 2) 79, 83, (1922, 2) 83, 84, (1923, 11) 77, 80, 81, 81, 82, 82, 82, 83, 83, 83.1, 88.1, (1924, 2) 80, 82	83,
Western University Medical School		(1922)	81
University of Hamburg, Germany		(1922)‡	78
University of Kiel, Germany		(1914)	76
National University, Athens, Greece		(1922)‡	75
University of Budapest, Hungary		(1919)‡	77
University of Szegedin, Hungary		(1913)‡	75

College	FAILED	Year Grad.	Per Cent.
University of Jurjev, Russia		(1918)‡	73

Dr. Harison also reports that 73 candidates were licensed by reciprocity from Jan. 3 to Oct. 20, 1924. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Colorado		(1914)	California
Yale University		(1921)	Mass.
George Washington University		(1912)	Dist. Colum.
Georgia College of Eclectic Medicine and Surgery		(1913)	Georgia
Bennett College of Eclectic Medicine and Surgery		(1896)	Illinois
Bennett Medical College		(1915)	Illinois
Chicago College of Medicine and Surgery		(1911), (1913)	Illinois
Hahnemann Medical College and Hospital, Chicago		(1918)	Illinois
Loyola University		(1924)	Illinois
Northwestern University		(1898), (1916), (1921), (1923, 4) (1923) Minnesota	Illinois
Rush Medical College		(1902), (1922, 2), (1923), (1924)	Illinois
Univ. of Illinois		(1912) Illinois, (1920) Wisconsin, (1924)	Illinois
Woman's Medical School of Northwestern Univ.		(1894)	Illinois
State Univ. of Iowa Coll. of Med.		(1908), (1920), (1923, 2)	Iowa
Johns Hopkins University		(1921) Ohio, (1922)	Maryland
University of Maryland		(1908)	S. Carolina
Harvard University		(1920), (1923)	Mass.
Tufts College Medical School		(1917) Massachusetts, (1922)	Maine
University of Minnesota		(1923)	Minnesota
St. Louis Univ.		(1906) Missouri, (1913) Mississippi, (1923, 2)	Missouri
Omaha Medical College		(1899)	Nebraska
University of Nebraska		(1923, 2)	Nebraska
University of Buffalo		(1918)	New York
Columbus Medical College		(1880)	Ohio
Eclectic Medical College, Cincinnati		(1919)	Ohio
Northwestern Ohio Medical College		(1889)	Ohio
Ohio State University College of Medicine		(1923, 2)	Ohio
Starling-Ohio Medical College		(1910)	Ohio
University of Cincinnati		(1923)	Ohio
Hahnemann Medical Coll. and Hosp. of Philadelphia		(1923)	Ohio
Jefferson Medical College		(1919), (1920)	Penna.
University of Pennsylvania		(1917)	Delaware
Woman's Medical College of Pennsylvania		(1907)	Penna.
Meharry Medical College		(1897) Georgia, (1904) (1904) Kentucky	Alabama
Vanderbilt University		(1919)	Tennessee
University of Vermont		(1899), (1912)	Vermont
Milwaukee Medical College		(1901), (1905), (1910)	Wisconsin
McGill University Faculty of Medicine		(1922)	Penna.
Trinity Medical College		(1902)	New York
University of Toronto Faculty of Medicine		(1922)	Illinois
Licentiate of the Royal College of Physicians, London, and the Royal College of Surgeons, England		(1913)	Dist. Colum.
University of Naples, Italy		(1905)	Ohio

* These candidates have completed their medical course, and will receive their M.D. degrees on completion of a year's internship in a hospital.

† No grade given.

‡ Graduation not verified by A. M. A.

Book Notices

ESPECIALIDADES GINECOLOGIA. Enfermedades de los Organos Genitales Externos, de la Vagina, de la Uretra, de los Uréteres y de la Vejiga de la Mujer. Gonococia, Sifilis y Tuberculosis de los Organos Genitales Femeninos. Por el Profesor Dr. Max Henkel, Director de la Clinica Universitaria de mujeres en Jena. Enfermedades del Utero. Por el Profesor Dr. Karl Reifferscheid, Director de la Clinica Universitaria de mujeres de Göttingen. Ovarios, Trompas, Ligamentos del Utero y Tejido Conjuntivo Pelviano, Peritoneo. Por el Profesor Dr. Rud. Th. von Jaschke, Director de la Clinica de mujeres de la Universidad de Giessen. Cloth. Pp. 193, with illustrations. Barcelona: Manuel Marin, 1923.

The latest volume of the Schwalbe series on errors in diagnosis is divided into three sections. Dr. Max Henkel of the Jena women's clinic discusses diseases of the feminine external genitals, vagina, urethra, ureters and bladder, in addition to gonorrhea, syphilis and tuberculosis; Dr. Reifferscheid of the Göttingen clinic, diseases of the uterus, and Professor Jaschke, ovaries, tubes, ligaments and peritoneum.

LAS DISENTERIAS. Estudio Epidemiológico. Por el Profesor Ch. Dopter, Membro de la Academia de Medicina de Paris. Paper. Price, 12 pesetas. Pp. 229, with 2 illustrations. Madrid: Paracelso, 1924.

The author has long been known for his work in tropical medicine. His present contribution is a thorough epidemiologic discussion of bacillary and amebic dysentery. The book naturally emphasizes French and English experiences, although a number of references to American authors appear.

SAFEGUARDING CHILDREN'S NERVES. A Handbook of Mental Hygiene. By James J. Walsh, M.D., Ph.D., Sc.D., Professor of Physiological Psychology, Cathedral College, and John A. Foote, M.D., Professor of Diseases of Children, Georgetown University Medical School. With a Foreword by Honorable Herbert Hoover. Cloth. Price, $2. Pp. 272, with illustrations. Philadelphia: J. B. Lippincott Company, 1924.

The evidence of an increasing number of nervous breakdowns is critically reviewed, with the conclusion that there is such an increase and that modern urban life and present-day up-bringing of children are factors in its cause. The authors attack the problem first with the gospel of "positive health teaching" and then with regard to the recognition and treatment of the nervous child. The inevitability of heredity is to them a bogy to be dispelled. They believe that a fatalistic attitude has resulted from studies of the Jukes and the Kallikaks (unfortunately referred to as the Kallikats). No faith is placed in any routine procedure for all children subject to a particular bad habit, but the principles of attack are laid down, together with sound counsel with regard to patience and the example of self-control. The discussion of the care of defective children is well balanced. The chapters are headed by happily selected quotations, drawn from a wide range of literature. The illustrations keep the spirit of child life.

THE BOOK OF BREAST-FEEDING. By Hester Viney. With a foreword by Dr. Eric Pritchard. Cloth. Price, $1. Pp. 75. New York: E. P. Dutton & Co., 1924.

The need of a book on breast feeding to place in the hands of mothers is important and is not met by this small volume. Enthusiasm for the midwife and the public clinic are a New Zealand point of view. It is hoped that the mixed feeding information is not representative of practice in that country. The technic of "expression of the breasts" is described inadequately and appears in an unimportant position, the bulk of the space being devoted to repetitious advice and sentiment aimed now at the mother, now at the nurse.

INORGANIC PHYSICAL CHEMISTRY. By G. H. Cartledge, Associate Professor of Chemistry, the Johns Hopkins University. Cloth. Price, $4.80. Pp. 463, with 56 illustrations. Boston: Ginn & Company, 1924.

This is a distinct contribution to physical chemistry. The subjects correspond with those taken up in other textbooks, but the author's style is pleasing and the clarity of his explanations is particularly refreshing. Sections on the physical properties of solids and liquids, colloids, and the vapor pressure of volatile mixtures have been purposely omitted. An outline of the contents at the beginning of each chapter gives the reader a comprehensive view of the subject.

PRÉCIS DE CHIMIE PHYSIQUE. Par H. Vigneron. Paper. Price, 30 francs net. Pp. 408, with 117 illustrations. Paris: Masson et Cie, 1924

This is a textbook on physical chemistry written in accordance with the French academic style. The author takes up the ordinary subjects in a fairly complete manner. It compares favorably with some well known American physical chemistry textbooks.

COLLOID CHEMISTRY. An Introduction, with Some Practical Applications. By Jerome Alexander, M.Sc., Consulting Chemist and Chemical Engineer. Second edition. Cloth. Price, $2 net. Pp. 208, with 6 illustrations. New York: D. Van Nostrand Company, 1924.

Mr. Alexander has greatly enlarged his interesting little book. The new edition continues to be a readable and easily understood exposition of this subject. The theoretical section contains a brief development of the whole field of colloids, in which the author introduces and explains some of the common terms used in this field. Mathematical development is absent. The practical section gives a brief survey of the fields of recognized colloid problems. Explanations of phenomena from a colloid point of view are abundant. References to the literature are given throughout. Although the field of colloids is treated in a rather elementary fashion, perusal of this volume will clarify the view of the "great scheme of things" for the average reader.

DISLOCATIONS AND JOINT-FRACTURES. By Frederic J. Cotton, A.M., M.D., F.A.C.S., Visiting Surgeon to the Boston City Hospital. Second edition. Cloth. Price, $10.00. Pp. 745, with 1393 illustrations. Philadelphia: W. B. Saunders Company, 1924.

The review of the first edition (THE JOURNAL, Nov. 26, 1910, p. 1916) was highly complimentary to the author and his work. In this edition the author not only has made use of his own cases, which was an outstanding feature of the previous edition, but has drawn largely on the clinical experience of others, using only such cases as he himself saw or of which he had personal knowledge. The text has been rewritten so as to include the newer knowledge that came out of the experience in the World War—but it is presented entirely from a personal point of view, and is not a rehashing of the garbled war-time reports. The author's own military experience is the basis of the new text, thus preserving the "personal" feature of the work.

INTELLECTUAL DEVELOPMENT AND THE ERECT POSTURE. By William Colin MacKenzie, M.D., F.R.C.S., F.R.S.E., Director of the National Museum of Australian Zoology. Cloth. Pp. 41, with 8 illustrations. Melbourne: Allan Grant, 1924.

This small book is devoted to expounding the thesis that man's intellectual supremacy depends on his having assumed the upright position, and that throughout the animal kingdom intellectual development varies directly with the extent to which the animal has lifted its head above the ground. Illustrations are drawn particularly from the fauna of Australia, which contains stages of evolution not seen elsewhere; it is "the land of living fossils." As here presented the exposition is dogmatic. Statements such as "Intelligence has a muscular basis," "The basis of chronic illness is muscular inefficiency," and "The basis of preventive medicine is maintenance and strengthening of the human erect posture" occur without qualification and without the presentation of evidence to satisfy the critical reader. This obnoxious person puts down the book with the thought that the author has presented some interesting thoughts but has not proved his case.

A TEXTBOOK OF MATERIA MEDICA FOR NURSES. By A. L. Muirhead, M.D., and Edith P. Brodie, A.B., R.N., Instructor in Materia Medica and Therapeutics, Washington University School of Nursing. Second edition. Cloth. Price, $2. Pp. 190, with 25 illustrations. St. Louis: C. V. Mosby Company, 1924.

This little book, written for the undergraduate nurse in training, meets the requirements very satisfactorily, as its authors have evidently kept the nurse's needs and limitations in mind even to the extent of confining themselves to a language she can readily understand. As the schedules of studies of the training schools for nurses in this country allow an average of about twenty-four hours for the study of this subject, the book is divided into twenty-four short chapters.

Miscellany

DYING FROM HEART DISEASE

A child at 10 years of age is three times as likely to die from heart disease eventually as from tuberculosis. At 35, the probability of dying eventually from heart disease is nearly four times that from tuberculosis among men and almost six times among women, according to the *Statistical Bulletin*, Metropolitan Life Insurance Company. About one in every five of the population living at age 10 will eventually succumb to organic heart disease, and the figure after age 40 is higher than before. The hazard for tuberculosis decreases with advancing age, but for organic heart disease it increases. The age data for heart disease reflect the wear and tear, or senility, factor in mortality. The *Bulletin* draws attention to these facts to suggest that at least as much attention should be paid to the prevention of heart disease as to that of tuberculosis. For thirty years, an international movement for the control of the latter has been in operation, but organized effort for the study of heart disease is limited to a few organizations inadequately supported. There should be a program of research, treatment and public education commensurate with the importance of heart disease as a source of preventable or postponable death.

PERIAPICAL INFECTION

It has long been known that team work is the best possible method of studying certain diseases. Since we have known that a chronic focus in one part of the body often causes disease in remote parts or organs, it has been the custom of some physicians to associate with themselves others having more special knowledge of particular parts of the body than they themselves possess, and as a result definite helpful results have been obtained. Special work has been along the lines of oral pathology. Rather wide clinical observation of oral conditions has broadened my comprehension of the relationship of oral to secondary lesions. It has been my good fortune to be able to follow up many of these cases in which oral foci were found and eliminated, and later to observe the results. In some of these patients miraculous cures have been observed, and the cures have been permanent. In such cases we must conclude that the oral focus which was eliminated was the cause of the secondary disease. In other cases there has been decided improvement in the patient's physical condition, but an entire cure has not resulted. In these cases the conclusion is that the jaw infection was not the entire cause of the disease the patient suffered from, but by the elimination of the jaw focus, the patient's load was lessened; therefore, there was a partial cure. In still other cases in which all mouth infection had been removed, no visible improvement in the patient's condition was observable. In such cases we must conclude that, if it is conceded that the oral condition was the primary cause, then other far more extensive foci have been set up as a result of the oral infection, which have been sufficient to continue the disease. But it might easily be conceived that the oral focus had nothing to do with the disease in question. In the attempt to cure secondary disease there is little doubt that many serviceable teeth have been sacrificed needlessly. In some instances the partial prosthesis made to supply the lost teeth not infrequently, as a result of the excessive stress brought to bear on the supporting roots, has invited infection and caused irreparable injury to the supporting structures, and has been far more harmful to the patient than the pulpless teeth removed could possibly have been. In the development of chronic periapical infections in general two tendencies predominate: one toward the encapsulation, excessive hypercementosis and fibrosis; and the other toward bone resorption, a minimum amount of fibrous network, and capsule formation. The disconcerting statement often made to patients that, as a result of chronic periapical infection, pus circulates in their veins, is perhaps more figurative than scientific. Our observations demonstrate that pathologic zones about roots of pulpless teeth do not always contain bacteria, and those that do are often so completely walled off by a connective tissue capsule and sclerosed bone that dissemination of germs is made difficult. Nature's effort to build a barrier against the spread of bacteria and bacterial products is found in the complete and partial enclosing wall of granulation tissue, even in the earlier stages of chronicity. This envelop may be missing in some parts of the circumference of the infected zone, but the effort to build is discernible in most cases. We have found in some instances that even when a part of the apex of a root has been denuded, the cementum covers it when the pulp canal has been thoroughly sterilized and filled. Others have shown this before, but our work is additional verification. We have also found in some instances that roots resected for the cure of chronic periapical infection have been completely covered over with a dense layer of fibrous connective tissue. The practical good that is to come from these investigations is that we may not, with the facts before us, be so willing to sacrifice all pulpless teeth. We may not see the necessity for the removal of good sclerosed bone constructed by nature for the protection of the cancellous underlying bone, which is far more subject to infection than the sclerosed bone. We may not see the necessity for cutting away the cortical parts of the jaw in the removal of teeth.—Gilmer, T. L.: *Dental Cosmos*, October, 1924.

Medicolegal

Physical Examination of Venereal Disease Suspect

(City of Jackson v. Mitchell (Miss.), 100 So. R. 513)

The Supreme Court of Mississippi, Division B, says that by an act of 1918 the legislature of that state provided for the punishment of any person afflicted with syphilis or any other venereal disease who, knowing of such condition, shall have sexual intercourse with any other person. By Section 2 of the act, the state board of health is given full power to isolate, quarantine or otherwise confine, intern and treat such person afflicted with such infectious venereal disease for such time and under such restrictions as may seem proper, and to pass all such rules and regulations as to the isolation, quarantine, confinement, internment and treatment as may be needful. By Section 3 it is provided that any person suspected of being afflicted with any such infectious venereal disease shall be subject to physical examination and inspection by any representative of the state board of health, and, for failure or refusal to allow such inspection or examination, such person may be punished as for a misdemeanor. Section 4 provides that any person knowingly violating any rule or regulation promulgated by the state board of health, under the authority of this act, shall be deemed guilty of a misdemeanor.

An affidavit was made against the defendant to the effect that a named physician, being an officer of the board of health, in the proper performance of his duties as such officer, had information on which he suspected the defendant of being afflicted with a contagious venereal disease, and summoned her to appear before him as such officer of the board of health to be by him examined, but that she wilfully and unlawfully failed and refused to appear for such examination. The defendant was convicted in the city court and took an appeal to the circuit court, where a demurrer to the affidavit was sustained, the judgment of the circuit court being here affirmed by the supreme court.

The constitutionality of the statute was elaborately argued, but is not passed on, because it was not necessary in order to dispose of the case, as this court thinks that the action of the court below must be upheld on the ground that the affidavit was insufficient to charge a violation of the statute, if valid. It is to be noted that the affidavit set forth no rule or regulation of the state board of health requiring the appearance of the suspected person before the health officer at his office, if indeed the board had power to pass such regulation under the act; and as the statute does not require

any person suspected of being so afflicted to appear at the office of the state board of health or at any agent's office for such examination, the statute is not necessarily violated by the refusal of the person to respond to such notice. The statute is to be strictly construed, and nothing can be taken by intendment or presumption against the defendant. The health officer cannot require, under the terms of the statute, such person to appear before him. He must go to the person and make demand on him at his place of business or residence. The affidavit did not allege that the affiant went to the defendant and disclosed the ground of his opinion or suspicion and then and there demanded the right under the statute to make the examination or inspection. Nor did the affidavit disclose that the physician in fact had any information that would authorize him to suspect the defendant to be so infected; nor did it disclose, if he had such information, its source, character or reliability. Certainly the statute cannot be construed to mean that mere suspicion founded on gossip or rumor would be sufficient. It is extremely doubtful as to whether the statute could be upheld if the information was not disclosed under oath by some credible person. Then the statute provides no means of hearing to the suspected person prior to submitting to the examination requested, and he is given no opportunity under the language of the statute to be heard. If the statute is valid, such hearing must be provided for. Moreover, it is doubtful whether the provisions of Section 2 are sufficiently specific to authorize the state board of health to provide such rules, but to uphold the statute such rules must be provided somewhere and the suspected person given an opportunity to be heard on the question before being required to submit to such a test.

Contract for Maintenance of Practice During Absence

(Rossiter v. Thompson (Calif.), 226 Pac. R. 806)

The District Court of Appeal of California, Second District, Division 1, in affirming a judgment in favor of the plaintiff for an alleged breach of contract by the defendant, says that the parties had entered into an oral agreement whereby the plaintiff was to come to the city where the defendant was engaged in the practice of medicine, the defendant agreeing to employ him to take full management and control of the defendant's practice and to maintain and carry it on for one year. As his compensation, the plaintiff was to receive 90 per cent. of the income of the practice during that period, after certain deductions were made. It was further agreed that the defendant should be privileged to remain away from the practice for the entire term of the agreement, and that he would allow the plaintiff to remain and continue in the full management and control of the practice for the stated period. The terms of the agreement were complied with for three months, when, it was alleged, the defendant wrongfully, and in violation of the agreement, resumed the management and conduct of his practice, and discontinued the employment of the plaintiff.

The complaint alleged that it was agreed that the "defendant should absent himself from said city . . . and abandon his said practice and patients for said period." This, the defendant contended, presented a situation inimical to the provisions of Section 1673 of the Civil Code of California, by which any contract whereby any one is restrained from exercising a lawful profession "is to that extent void." The contract was one of employment. The apparent intention of the parties was that the employee was to do all the work and the employer was not expected to be present even for the purpose of overseeing it. The language of the contract that the employer "should absent himself . . . and abandon his practice" was more in the nature of a privilege extended to the employer than that it was mandatory or compulsory that he should do so. In the very nature of things it would not be expected that an employer would abdicate all authority in the premises which might ensue from an enforced absence from the place where the work was to be performed. The principal and controlling feature of the agreement was that the plaintiff should assume and undertake the burdens and responsibilities of and conduct and carry on the said practice of the defendant for the ensuing year. The provision that the defendant should absent himself and abandon his practice was merely incidental to the main object of the agreement. The contract was composed of several severable parts. If it be assumed (without necessarily deciding the point) that that part of the agreement by which the defendant was "restrained from exercising a lawful profession" was in contravention of the provisions of Section 1673 of the Civil Code, and was "to that extent void," yet the remainder of the contract having to do with the employment of the plaintiff by the defendant, being complete in itself, and not in any manner relating to or dependent on the objectionable feature of the agreement, and not in violation of any law, might stand. Again, the court says that the void part of this contract (assuming it to be such) was susceptible of exact ascertainment and separation; and such separation did no violence to the language of the statute, and certainly did justice between the parties. The court also mentions that the statute to which reference has been made permits a sale of "the good will of a business . . . within a specified county."

With regard to the defendant's contention that the contract as set forth in the findings was illegal, the court says that no authorities were cited to support the contention, and this court is unable to discover any defect therein which would result in a legal declaration of the nature of that suggested by the defendant.

A rehearing was denied; and afterward the Supreme Court of California denied a hearing.

Society Proceedings

COMING MEETINGS

Middle Section of American Laryngological, Rhinological and Otological Society, Lafayette, Ind., Feb. 23. Dr. George F. Keiper, 14 North 6th Street, Lafayette, Ind., Chairman.

Southern Section of American Laryngological, Rhinological and Otological Society, Jacksonville, Fla., Jan. 19. Dr. H. Marshall Taylor, 111 West Adams St., Jacksonville, Chairman.

WESTERN SURGICAL ASSOCIATION

Thirty-Fourth Annual Meeting, held at French Lick Springs, Ind., Dec. 4-6, 1924

The President, DR. DONALD MACRAE, JR., Council Bluffs, Iowa, in the Chair

Ochsner Treatment of Appendicitis

DR. W. W. GRANT, Denver: The procedure is known as the rest and starvation treatment, salt solution being supplied by rectal enemas, and nothing being administered by the stomach. The practice became dangerously common and was applied in most acute as well as mild cases, and the mortality increased from needless operative delays. I recognize no substitute for immediate operation in this difficult and dangerous condition at any stage. It is common knowledge that these patients die unless operated on, and in general septic peritonitis most patients die with operation. It is the surgeon's duty to use every endeavor to prevent peritonitis, and in my opinion anatomic and physiologic rest, starvation and salt solution do little or nothing to mitigate the pathologic process, while the patient's resistance diminishes. It is my conviction that until the profession regards the disease as essentially surgical and treats it by immediate operation in all uncomplicated cases, the mortality will not be substantially decreased.

Crile's Technic in Perforative Appendicitis

DR. EDMUND A. BABLER, St. Louis: During the past year I have been using Crile's technic in cases of gunshot wound of the stomach and intestines in which a more or less extensive peritonitis was expected to develop, as well as in cases of acute, local or generalized peritonitis due to causes other than appendicitis. The results have been marvelous. There is no reason why we should wait until peritonitis has developed before applying the proper treatment. Every patient with acute appendicitis may be saved by immediate operation.

Purgatives have no place in the treatment of appendicitis. Operative procedures in perforative appendicitis must be clean-cut and consist only of placing drains. Complete anociation is the ideal and must be followed. Local anesthesia, supplemented by nitrous oxid and ether to secure full relaxation while the drains are being placed, must be followed to obtain the best results. Morphin must be given sufficiently often to reduce the respiratory excursions to from 10 to 14 per minute. Scopolamin, 1/130 grain, added to every second injection of morphin sulphate, 1/4 grain, prevents the wild delirium sometimes noted after morphin alone, and prolongs the effect of the morphin. Nothing is to be given by mouth. Here is where Ochsner's starvation treatment is indicated, postoperatively instead of preoperatively. The stomach is to be lavaged with 5 per cent. sodium bicarbonate solution at least once and repeated as often as necessary. A pint of physiologic sodium chlorid solution is to be given hypodermically every four hours, during the first three days at least. The rectal drip still reigns supreme; Crile advocates the use of 5 per cent. sodium bicarbonate with 5 per cent. glucose by rectal drip. Hot wet packs to the entire abdomen have been found of great value by Crile. Electric light exposure will probably prove better and less cumbersome. Any further advance in the treatment of perforative appendicitis must come from (1) operation before the development of spreading peritonitis or, (2) perfection of a serum.

Mesenteric Vascular Occlusion

DR. CARL E. BLACK, Jacksonville, Ill.: These cases are overlooked because the accident has been considered as a rarity and has not been kept sufficiently in mind by either the diagnostician or the operator. The mortality is not so high as heretofore supposed when we take into consideration the spontaneous establishment of a collateral circulation. Early operation will greatly lower the mortality.

Cancer of the Colon Simulating Appendicitis

DR. FREDERICK BAILEY, St. Louis: In three cases of cancer of the ascending colon, classical symptoms of appendicitis were present, the blood picture and physical findings corroborating. There had been no loss of weight, anemia, stenosis or discernible blood in the stool. The second patient had a primary abscess and a palpable tumor which, after drainage of the abscess cavity, led to a fluoroscopic enema and a preoperative diagnosis of suspected cancer or tuberculosis of the colon.

Carcinomatous Ovarian Teratoma with Premature Puberty and Precocious Somatic Development

DR. ROWLAND H. HARRIS, Battle Creek, Mich.: A girl, aged 5 years and 10 months, had a carcinomatous teratoma of the right ovary, associated with sexual and somatic precocity. The tumor, weighing 4 pounds and 4 ounces (1.9 kg.), was removed, and after ten years and eight months this patient is in good health and free from discoverable recurrence. The tumor contained embryonic lung tissue, neuroglia tissue and nerve cells, tissue resembling the gastro-intestinal tract, islands of cartilage, and dermoid cysts containing hair, sebaceous glands and sweat glands. There were structures from all three germ layers. The larger part of the growth presented the appearance of adenocarcinoma, showing in some places solid medullary masses of carcinoma with areas of necrosis. Since the operation, the mental and physical development of the patient have been normal. She feels perfectly well and is a junior in high school. Normal puberty appeared at the age of 12 years and 9 months. The history indicates that a malignant tumor may attain large size without the occurrence of metastasis.

Cancer of the Breast

DR. BYRON B. DAVIS, Omaha: I have reviewed 113 cases of cancer of the breast. None of the patients have survived more than fifteen years or less than five years since their operations. Of these cases, ninety-six have been traced. Of the ninety-six patients, forty-nine have died of cancer, four are now suffering from recurrence or metastasis, and forty-three are alive and well with no sign of local recurrence or metastasis. This gives a percentage of 44.8 that have been free of recurrence for from five to nearly fifteen years. Of the forty-nine fatal cases, there was definite carcinomatous involvement of the axillary glands at the time of operation in thirty. In very few of the patients now well was enlargement of the axillary glands noted. In forty-seven of the fatal cases the average length of time that elapsed between operation and death was two years and thirteen days. Three of these patients died within six months, ten between six and twelve months, eleven between one and two years, ten between two and three years, and only thirteen lived more than three years after the operation. One survived seven years and twenty-four days. I seriously question whether in very advanced cases in which the patients cannot be expected to be cured, they should not be advised to have palliative roentgen-ray treatment and be saved from the ordeal of a radical operation. It is urged in the interest of our patients that we keep in as close touch with their progress as possible, for if we ever reach any definite conclusions concerning cancer of the breast it will be necessary to know our results.

Enteroliths Contained in Diverticula of the Large Bowel

DR. MILES F. PORTER, Fort Wayne, Ind.: A woman, aged 60, entered the hospital in April, 1924, with a history of partial obstruction of the bowel extending over a period of many months. Fifteen years before, she had an attack of acute abdominal trouble centering in the right lower quadrant. The examination revealed nothing save a palpable mass in the cecal region, and roentgen-ray examination showed a filling defect at the cecum. The diagnosis was cancer of the cecum. At operation a large, hard mass containing the lower ileum, cecum and appendix was removed, and a side-to-side anastomosis was done. The mass proved to be made up of bowel firmly bound about a diverticulum of the cecum, which diverticulum contained an enterolith about the size of a hickory nut. Postmortem examination, six days later, revealed gangrene of the operative area, which seemed entirely shut off from the general abdominal cavity. There was no sign of peritonitis. The enterolith was fecal in origin.

Cervical Sympathectomy for Angina Pectoris

DR. J. LOUIS RANSOHOFF, Cincinnati: The indication for operation is angina pectoris that cannot be controlled by medication. If an organic heart lesion is present, it must be well compensated. The younger the patient and the more severe the attacks, the more urgent is the operative indication. The operation as described by Jonnesco is delicate rather than difficult. I operated on a man, aged 52, in March, 1924, by the Jonnesco method, under local anesthesia, 1 per cent. procain. He was last examined, Oct. 23, 1924, when he stated that the attacks of angina had absolutely ceased, and for the first time in two years he was able to resume his occupation. There is still some dyspnea on exertion and an occasional sense of weight in the precordium. The dyspnea, while less severe than before the operation, is due to cardiac insufficiency and will always persist. The systolic and diastolic blood pressure before operation was 160/98; when last examined, it was 150/110. A second patient, a rather corpulent woman, aged 53, was operated on, June 10, 1924. She was last examined, October 26, and reported that there had been a complete freedom from attacks of angina. There is still dyspnea on exertion and at times a sense of fulness in the precordial region. The blood pressure before operation was 227/115; when last recorded, it was 198/120. These cases show that the attacks of angina pectoris may, in certain cases, be prevented by left cervicosympathectomy. Naturally, the cardiac disease and the hypertension are not influenced, but the patient's life may be made comfortable.

Preparation of Toxic Goiter Patient for Operation

DR. WILLARD BARTLETT, St. Louis: In our goiter clinic, the interns and students are presented with a printed "preparation" slip which enables them to carry out a definite routine, as follows: 1. Rest: (*a*) quiet spot (in bed); (*b*) no company; (*c*) selected nurse; (*d*) drugs (barbital group). 2. Diet: (*a*) nonprotein; (*b*) high caloric; (*c*) forced fluids by mouth, rectum, nasal tube, skin, veins; (*d*) stimulants. 3. Circulatory: (*a*) digitalis; (*b*) tapping; (*c*) dry diet; (*d*)

salt-free diet. 4. Specific (exophthalmic type): (*a*) compound solution of iodin; (*b*) roentgen ray; (*c*) radium. 5. Operative (exophthalmic type): (*a*) injections; (*b*) cautery; (*c*) ligations. The only qualification of the term "cure" is this: One must always bear in mind, in speaking of it, that a definite anatomic lesion has been produced before we see some of these patients. Consequently, their rehabilitation can be only relative instead of absolute.

Localized Gangrene Following the Hypodermic Administration of Calcium Chlorid

DR. MAJOR G. SEELIG, St. Louis: Calcium chlorid, administered intravenously, in strengths above 1 per cent. is not an innocuous drug. Solutions of 2 per cent. and over show a marked tendency to cause necrosis and gangrene when brought into contact with subcutaneous tissue, constituting a very real menace because of the danger of some of the solution escaping into perivenous tissue. The poisonous effect of calcium chlorid (marked cardiac depression) may be discounted in large measure because the dosage commonly used is not large enough to cause toxic symptoms, particularly if the solution is administered slowly. The administration of 1 per cent. solution, in doses of 50 c.c. administered slowly, seems to be a certain protective against all undesirable effects.

Splenectomy for Purpura Hemorrhagica

DR. MALVERN B. CLOPTON, St. Louis: Two patients were operated on by me more than ten months ago, with such marked improvement that they could reasonably be called "cures." In a more recent case, that of a woman, aged 34, the patient is much improved. The two cases, in children, had their earliest manifestation at the age of 5 years. One began as a mild, apparently simple purpura, the other as an influenza. Both children had been given numerous remedies by mouth and subcutaneously, without effect. The boy showed a red count of 2,600,000 and the girl 2,500,000 after a transfusion which was given immediately on her admission because of her extreme weakness. After removal of the spleen from the boy, the oozing seemed to stop immediately from the surfaces left exposed by the tearing of adhesions. Before operation the bleeding time was thirteen minutes, and one hour later it was less than a minute. The girl's bleeding time varied from thirty-seven minutes, seven days before operation, to twelve minutes as she came to the operating room, and shortly after the operation the bleeding time was two minutes, and bleeding from the nose was stopped while the child was still on the operating table. The spleen in each instance was normal to microscopic examination. In each case there was an immediate increase in the leukocyte count, and the platelets increased gradually. Since the sixth month there has not been any bleeding of any sort in either case. Both patients have gained in weight and are in good condition. In the third case, despite serious complications and very poor general condition before operation, the patient has made steady improvement.

Conservative Management of Extra-Uterine Pregnancy

DR. WILLIAM JEPSON, Sioux City, Iowa: In a consideration of cases in which the only tube possessed by a woman becomes the seat of a pregnancy, it may certainly be questioned whether it is not carrying conservative surgery too far to do a salpingotomy with a view of saving the tube for further function. The fact that a tube once the seat of a gestation is greatly exposed to a repetition of the accident has been proved, and whether this risk should outweigh the desire for motherhood may well be a question.

Compression of Spinal Cord and Its Roots by Hypertrophic Ostearthritis

DRS. HARRY L. PARKER and ALFRED W. ADSON, Rochester, Minn.: Eight patients were seen in the Mayo Clinic between August, 1922, and November, 1924, who were suffering from a compression of the cord or its roots due to hypertrophic ostearthritis. In all these the lesion was focal in character and confined to from one to four vertebrae. In one patient the cervical, in three patients the dorsal, and in four the lumbar portion of the spine was involved. The symptoms and signs were very similar to those occurring in cases of extramedullary tumor of the spinal cord, but the pain produced by the disease was less spontaneous, and more influenced by posture, movement and exertion. Roentgenologic studies did not reveal the extent of the process, and were of value only in excluding other diseases. In five cases a yellow fluid was obtained on lumbar puncture, and in three there was no change in the spinal fluid pressure on compression of the jugular veins. A partial or complete block in the spinal canal was diagnosed in six cases, and was verified at operation. The pathologic process was limited to a relatively few vertebrae. It consisted of an overgrowth of soft, spongy, vascular bone, inflammatory in character and producing a marked narrowing of the spinal canal. This localized bony overgrowth was the most marked feature in the whole series; and although the name "hypertrophic ostearthritis" is used, the bony changes were out of proportion to any joint disease. The immediate results following decompression laminectomy have been very satisfactory, but sufficient time has not elapsed to justify a definite statement regarding the ultimate prognosis.

Diagnosis and Treatment of Brain Injuries

DR. FRANK R. TEACHENOR, Kansas City, Mo.: The early diagnosis and control of increased intracranial pressure, to prevent the extreme degree of medullary compression, is the surgeon's best weapon in combating the high mortality of intracranial trauma. Clinical signs are of paramount importance, and when present in sufficient numbers offer an excellent guide. The classical clinical signs of compression are mainly those of medullary pressure, and marked cerebral pressure may exist without marked clinical signs. Without inadequate clinical signs, the spinal manometer and the ophthalmoscope are of indicative value. Concentrated saline solutions are particularly active in removing fluid in the meningeal type of edema. The action is not so positive in the true cerebral edema, but it is our best method of treatment. It has been so satisfactory that the operation of decompression is rarely necessary. The indications for subtemporal decompression are: extradural middle meningeal hemorrhage; rapidly increasing intracranial pressure from hemorrhage or edema, and increased intracranial pressure which is not controlled by spinal puncture and hypertonic saline solutions. By the control of compression, both mortality and morbidity rates may be lowered.

A Simple Method of Ureteral Repair

DR. L. L. MCARTHUR, Chicago: Given a missing portion of a ureter (even 1 or 2 inches), a longitudinal slit is to be made in the side of the proximal portion sufficiently long to admit two catheters. One of these (a rubber urethral catheter) is inserted upward to the renal pelvis; the second (a ureteral catheter of good size) is inserted downward, passing out of the proximal end and bridging the gap to the proximal end of the distal remaining ureter. Both ends of the ureters are then approximated as much as feasible by absorbable stitches. The catheters are then brought to the surface and permanently secured to the skin by stitches or some other device. All the urine from that kidney is thus diverted from the field of operation. The body tissues heal together around the catheter, bridging the gap between renal end and vesical end, and it simply remains in situ until in the judgment of the operator an epithelial lining has had time to grow between the ends.

Subcutaneous Rupture of Biceps Flexor Cubiti

DR. EDGAR L. GILCREEST, San Francisco: A man, aged 58, while lifting an object weighing 100 pounds (45 kg.), with his hands and fingers extended, suddenly felt a sharp pain in his right shoulder. An hour later a very definite swelling was seen in the lower third of his arm and a hiatus was felt above this. There was pain along the course of the short head of the biceps, and a diagnosis of rupture of the long head of the biceps was made. At operation the long head was found to have been torn off from a cartilaginous attachment on the glenoid margin. Two other cases are reported in the literature, but this case differed from those in that the ruptured, or upper end, turned completely over in a jackknife fashion and was found down in the arm near the elbow. It is usually found waved like a letter S, or twisted on itself.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL for a period of three days. No foreign journals are available prior to 1920, nor domestic prior to 1923. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested).

Titles marked with an asterisk (*) are abstracted below.

American Journal of Public Health, Albany, N. Y.

14: 917-1010 (Nov.) 1924

Automobile as Public Health Hazard. A. J. Chesley, Minneapolis.—p. 917.
Anthrax; Hazard of Industry. H. F. Smyth, Philadelphia.—p. 920.
Sanitation Problems in Resorts and Tourist Camps. J. M. Hepler, Lansing, Mich.—p. 925.
Statistical Aspects of Pneumonia. E. B. Wilson, Boston.—p. 931.
Public Health Practice in Small Cities and Towns of Connecticut. I. V. Hiscock and F. M. Munson, New Haven, Conn.—p. 934.
Responsibilities of Boards of Health and Boards of Eductaion in Conservation of Vision in Children. L. H. Carris, New York City.—p. 941.
Relation of Bacterial Count to Putrefaction of Meat. J. Weinzirl, Seattle.—p. 946.
Control of Public Health Laboratory. J. J. McShane and T. G. Hull, Springfield, Ill.—p. 950.
Municipal Meat Inspection. W. C. Hollingworth, Utica, N. Y.—p. 953.
Dick Test and Active Immunization with Scarlet Fever Streptococcus Toxin. A. Zingher, New York City.—p. 955.
Milk-Borne Disease in Massachusetts. Third Report. E. R. Kelley and W. G. Webber, Boston.—p. 963.
Mental Hygiene and Health Officer. F. E. Williams, Lansing, Mich.—p. 968.

Atlantic Medical Journal, Harrisburg, Pa.

28: 57-126 (Nov.) 1924

Drivers of Motor Vehicles and Their Sight and Hearing. G. E. Curry, Pittsburgh.—p. 57.
*Sphenopalatine Ganglion Neurosis. F. Fisher, Jr., Erie, Pa.—p. 59.
Treatment of Parenchymatous Keratitis. B. Chance, Philadelphia.—p. 62.
*Abuse of Tuberculin as Therapeutic Agent. A. Armstrong, White Haven, Pa.—p. 67.
Nephritis. N. B. Foster, New York.—p. 71.
Radiation in Treatment of Primary Malignant Disease. G. E. Pfahler, Philadelphia.—p. 76.
Modern Trend in Dermatology. L. G. Beinhauer, Pittsburgh.—p. 80.
Testing Malingering of Deafness. D. MacFarlane, Philadelphia.—p. 82.
Value of Various Operations for Neuralgia of Fifth Nerve. G. M. Dorrance and J. W. Bransfield, Philadelphia.—p. 84.
Tumors of Rectum and Anus Are Not Always Malignant. L. H. Adler, Jr., Philadelphia.—p. 84.
*Placental Extract Not a Galactagogue. C. M. Stimson, Philadelphia.—p. 85.
Case of Postencephalitic Parkinsonian Syndrome Showing Tramping and Champing Movements. T. Fay, Philadelphia.—p. 86.

Sphenopalatine Ganglion Neurosis.—In a series of fifty cases of sphenopalatine injection, Fisher, Jr., has had sixteen spheno-ethmoidal operations subsequent to the injections. So far none of the operative cases have shown recurrence.

Abuse of Tuberculin as Therapeutic Agent.—Armstrong advises never to use tuberculin when there is an active tuberculous lesion in the lungs or other organs of the body. It is a dangerous remedy on account of its erratic action at times and the smallest possible dose should be used to avoid a general reaction.

Placental Extract Not Galactagogue.—Stimson calls attention to the fact that experimental and clinical work has shown that placental extract is not a galactagogue as is claimed by manufacturers of such products; in fact, the placenta exercises an inhibitory influence on the mammary gland through a hormone circulating in the maternal blood, and holds in check the actual appearance of milk until the child is born, the placenta expelled and the placental hormone removed from the maternal circulation by the process of elimination.

California and Western Medicine, San Francisco

22: 537-594 (Nov.) 1924

Relation of Clinical Laboratories to Practice of Medicine. P. G. Woolley, Los Angeles.—p. 537.
*Obstruction of Cystic Duct. A. S. Lobingier, Los Angeles.—p. 540.
Importance of Early Diagnosis in Oxycephaly and Allied Cranial Deformities; Prevention of Blindness and Other Sequelae. H. K. Faber, San Francisco.—p. 542.
Vincent's Disease and Parasyphilis; Fatal Case. F. F. Gundrum, Sacramento.—p. 545.
*Plea for Standardized Wassermann Test. E. H. Ruediger, Los Angeles.—p. 548.
Removal of Tonsils by Electrocoagulation. A. C. Carlton, San Francisco.—p. 554.
Glimpses of Past Medical Social Service Work and Its Present Status. P. T. Magan, Los Angeles.—p. 556.
Epidemic Encephalitis. J. B. Doyle, Rochester, Minn.—p. 558.
Cysts of Prostate and Urethra. M. B. Wesson, San Francisco.—p. 562.

Obstruction of Cystic Duct.—Lobingier feels that too little attention has been given to the importance of the cystic duct in the acute pathology of the gallbladder. Its interesting and complicated anatomy, its many variations in form, course and position with relation to the choledochus and common hepatic duct, the grave surgical complications which may arise from its obstruction, all merit a critical consideration.

Comparative Value of Tests for Syphilis.—The old-fashioned Wassermann test, the Herrold ring or contact precipitation test for syphilis and the Kolmer modification of the Wassermann test were compared by Ruediger with his method. He found great disagreement in the results obtained. His method was from fifty to one hundred times as sensitive as the old Wassermann test, from fifty to one hundred times as sensitive as the test proposed by Herrold, and from two to four times as sensitive as the Kolmer modification of the Wassermann test.

Colorado Medicine, Denver

21: 322-358 (Nov.) 1924

Doctor and Public. H. Sewall, Denver.—p. 324.
Unusual Complications in Gynecology. R. T. Frank, Denver.—p. 330.
Heliotherapy in Advanced Pulmonary Tuberculosis. I. D. Bronfin, Sanatorium, Colo.—p. 334.
Ductless Gland Diseases. J. Pestal, Lamar, Colo.—p. 338.
Vital Capacity of Lungs; Prognosis in Pulmonary Tuberculosis. L. W. Frank and H. L. Cooper, Denver.—p. 342.
Multiple Fat Embolism. W. S. Dennis and P. Work, Denver.—p. 347.

Johns Hopkins Hospital Bulletin, Baltimore

35: 346-384 (Nov.) 1924

*Nonprotein Nitrogen Retention During Eclampsia and Allied Conditions. E. D. Plass, Baltimore.—p. 345.
*Plasma Protein Variations in Normal and Toxemic Pregnancies. E. D. Plass and J. L. Bogert, Detroit.—p. 361.
*Pulmonary Infection with Spirochaetae and Fusiform Bacilli of Vincent. C. McNeill, Louisville.—p. 368.
*Use of Eserin and Strychnin in Postoperative Abdominal Distention. K. H. Martzloff, Baltimore.—p. 370.
*Experimental Study of Ununited Fractures with Especial Reference to Inorganic Bone-Forming Elements in Blood Serum. H. A. Petersen, Baltimore.—p. 379.

Nonprotein Nitrogen Retention During Eclampsia.—Repeated examinations made by Plass of certain nonprotein nitrogen fractions and of the protein of the blood plasma have indicated that after delivery in normal patients there is a tendency for the former to rise and for the latter to fall; whereas in patients suffering from the late toxemias of pregnancy these changes are almost invariably accentuated, their extent being determined largely by the severity of the disease. In the latter group, similar but slighter changes can follow medicinal treatment without delivery, a fact which is taken to mean that physiologic puerperal alterations cannot be held responsible for the changes, although they may augment the variations appearing when improvement is induced by delivery. By exclusion, a tissue retention process is suggested as explaining the changes noted, although the effect of renal insufficiency is not to be disregarded.

Plasma Protein Variations in Pregnancy.—By plotting the averages of numerous plasma protein determinations on the blood of normal and toxemic women in all stages of the reproductive cycle, Plass and Bogert have developed the approximate curves of plasma dilution in these various conditions. It is believed that these figures show roughly the relative changes of plasma and blood volume occurring normally and pathologically among pregnant women, although the percentage variation is somewhat smaller than that reported by other authors using different methods. No definite explanation for the changes is attempted, but it is suggested that the presence of an appreciable or imperceptible edema may possibly explain the observed physiologic and pathologic alterations. In the women with the late toxemias of pregnancy, the degree of plasma dilution varies with the

amount of clinical edema, and is apt to be less marked in those who develop general convulsions than in those who do not. This finding suggests that edema may be a protective mechanism designed to guard the organism against some general cellular poison developed under certain conditions during gestation.

Pulmonary Infection with Spirochetes.—McNeill reports a case of an infection of the parenchyma of the lung—a disease that may be clinically and roentgenologically indistinguishable from pulmonary tuberculosis, but which is easily diagnosed from a stained smear of the sputum, and heals like magic under intravenous arsphenamin therapy. The organisms present in this case were the spirochetes and fusiform bacilli of Vincent. The author asserts that this is the only case of the kind on record.

Prevention of Postoperative Abdominal Distention.—The study by Martzloff includes 162 gynecologic patients, on whom an abdominal operation was performed. Of these, seventy-four received physostigmin (eserin) and strychnin after operation and eighty-eight did not. Of the former, thirty-four developed distention totaling 776 hours, or an average of 22.8 hours of distention for each patient. Of the latter, eleven developed postoperative distention totaling 147 hours, an average of 13.4 hours for each patient. Emesis occurred as a complication in twenty-seven of the treated patients, while in the untreated group, twenty-six patients developed this condition. Voluntary micturition was reestablished within twenty-four hours after operation in forty-four of the treated patients and in sixty-one of those who were not treated.

Healing of Fractures.—Petersen asserts that in the healing of fractures a definite relationship exists between the concentration of the inorganic bone-forming elements in the serum and the rate of repair. If the phosphorus content of the blood serum of the dog is reduced by diet to such a degree that the product of the calcium and phosphorus is less than thirty, fractures will not unite. If the phosphorus and the calcium-phosphorus product are again raised to their normal level, the fractured bones will unite.

Journal of Bacteriology, Baltimore

9: 513-612 (Nov.) 1924

Acid Forming Streptococcus as Indices of Fomites Pollution. C. E. A. Winslow and D. H. Sanjiyan, New Haven, Conn.—p. 513.
Bartolomeo Bizio's Letter to Angelo Bellani Concerning Phenomenon of Red-Colored Polenta. C. P. Merlino, Geneva, N. Y.—p. 527.
Type Species of Genus Serratia, Commonly Known as Bacillus Prodigiosus. R. S. Breed and M. E. Breed, Geneva, N. Y.—p. 545.
Effects of Some Electrolytes on Buffering Capacity of Bacterium Coli. H. J. Shaughnessy and I. S. Falk, New Haven, Conn.—p. 559.
Effect of Environmental Changes on Growth, Morphology, Physiology and Immunologic Characteristics of Bacterium Typhosum. C. S. Stuart, Providence, R. I.

Journal of Experimental Medicine, Baltimore

60: 575-717 (Nov. 1) 1924

Precipitation and Complement Fixation Reactions with Residue Antigens in Nonhemolytic Streptococcus Group. C. H. Hitchcock, St. Louis.—p. 575.
*Studies on Malignant Tumors. VI. Variations in Growth and Malignancy of Transplanted Tumors. I. Results of Transplantation for First Twenty Generations. W. H. Brown, L. Pearce and C. M. Van Allen, New York.—p. 583.
*Id. VI. Variations in Growth and Malignancy of Transplanted Tumors. L. Pearce, W. H. Brown and C. M. Van Allen, New York.—p. 603.
Influence of Suprarenal on Thymus. II. Regeneration of Involuted Thymus Following Double Suprarenalectomy in Rat. H. L. Jaffe, New York.—p. 619.
Effect of Heat on Flagellar and Somatic Agglutination. M. L. Orcutt, Princeton, N. J.—p. 627.
Penetration of Bacteria Through Capillary Spaces. IV. Kinetic Mechanism in Interfaces. S. Mudd and E. B. H. Mudd, New York.—p. 633.
Certain Interfacial Tension Relations and Behavior of Bacteria in Films. S. Mudd and E. B. H. Mudd, New York.—p. 647.
Tissue Resistance and Cause of Permanent Acquired Immunity. S. Nukada and T. Matsukaki, Peking, China.—p. 661.
Nature of Heat-Labile Substance ("V") Required for Growth of Bacillus of Pfeiffer. Thjötta, Christiania, Norway.—p. 671.
Relation of Dose of Bacteria to Group Infection. A. L. Bloomfield and A. R. Felty, Baltimore.—p. 679.
Relation of Vegetative Activity of Bacteria to Pathogenicity. A. R. Felty and A. L. Bloomfield, Baltimore.—p. 703.

Variations in Growth of Transplanted Tumors.—A report is given by Brown, Pearce and Allen of the results obtained by intratesticular inoculation of a malignant tumor of the rabbit based on a study of the first twenty generations. The subject is presented from the standpoint of variations in growth and malignancy as they occurred with continued transplantation. Essential features of the experimental conditions and of clinical and postmortem observations are condensed and recorded graphically. On analyzing the results of these experiments, it was found that many changes had occurred in the behavior of the tumor during transplantation, but that the changes were of a very irregular character and, as a rule, did not proceed constantly in any given direction. Moreover, the evidence as to the effect of transplantation on the growth and malignancy of the tumor was contradictory in that there was a great deal of evidence to show that there had been a decided increase in the activity and capacity for growth on the part of the tumor cells. But, with the exception of a few generations, there was an apparent reduction in the incidence and percentage distribution of secondary tumors, while the death rate was unaltered or actually diminished. It was believed that this paradoxical situation afforded a basis for an explanation of the results that had been obtained by transplantation.

Factors Influencing Growth and Malignancy of Transplanted Tumors.—The results of transplantation, as recorded in the previous paper, are analyzed from the standpoint of the influence of the factors of serial passage, the material used for inoculation, the age and breed of the animals, and the time or season at which the experiments were carried out. The material used for the inoculation of different groups of animals appeared to have comparatively little effect on the ultimate results. The character of the animals used was found to be a factor of more importance in that the tumor displayed definite peculiarities of growth and malignancy to referable age and to breed or color markings. Still, it seemed unlikely that any of these factors would account for the variations in growth and malignancy that had been observed. After considering the various possibilities presented, it appeared that the principal factors concerned in determining the results of transplantation were adaptation to passage and variations in the conditions of season and weather that prevailed during the time the experiments were being carried out—the one affecting the energy of cell growth and the other affecting animal economy.

Medical Journal and Record, New York

120: 365-416 (Oct. 15) 1924

SUPPLEMENT

Nervous and Mental Phenomena Following Chronic Intoxication with Valerian. A. Gordon, Philadelphia.—p. cxiii.
Diet in Causation of Epilepsy. E. A. Tracy, Boston.—p. cxv.
Allergy as Factor in Etiology of Idiopathic Epilepsy. E. B. McCready and H. M. Ray, Pittsburgh.—p. cxvii.
Use of Luminal in Treatment of Excited Phases of Mental Illness. L. D. Hubbard, Washington, D. C.—p. cxix.
Mechanical Aids in Localization of Brain Tumors. F. G. Grant, Philadelphia.—p. cxxi.
Amaurotic Family Idiocy. J. Epstein, New York.—p. cxxiii.
Blocking Off Remote Pain at Nasal Ganglia. H. Byrd, Bradentown, Fla.—p. cxxvi.

120: 417-472 (Nov. 5) 1924

*Life Expectancy with Aortic Regurgitation. F. A. Willius and J. Fitzpatrick, Rochester, Minn.—p. 417.
Chronic Anemias and Related Conditions. J. H. Smith, Richmond, Va.—p. 421.
*Rationale of Acute Mercuric Chlorid Poisoning. A. E. Oliensis, Philadelphia.—p. 427.
Case of Gonorrheal Arthritis with Purulent Fluid in Synovial Space. M. Lavandera, New York.—p. 428.
Acute Empyema Treated by Combined Closed and Open Method. W. B. Marbury, Washington, D. C.—p. 429.
*Unusually High Blood Sugar Content in Case of Diabetes. R. L. Pitfield, Philadelphia.—p. 433.
Modern Cataract Operations. A. G. Biddle, New York.—p. 434.
Advantages of Stylet Used with Rehfuss Tube. M. Golob, New York.—p. 436.
Aniline Dyes in Treatment of Infections. M. McK. Bell, New York.—p. 437.
Therapy of Nonspecific Protein Reaction. R. H. Spangler, Philadelphia.—p. 440.
Historical Evolution of Doctrine of Crisis in Disease. C. G. Cumston, Geneva, Switzerland.—p. 442.

SUPPLEMENT

Knee Joint Injuries: Diagnosis and Treatment. C. Ogilvy, New York.—p. cxxix.

Operative Treatment of Osteomyelitis in Long Bones. W. H. Hallilay, London.—p. cxxxii.
Rational Treatment of Fractures in Region of Elbow Joint. S. W. Boorstein, New York.—p. cxxxiv.
Diagnosis and Treatment of Fractures. H. Keller, New York.—p. cxxxix.

Life Expectancy with Aortic Regurgitation.—In an attempt to determine as accurately as possible the life expectancy of patients suffering from aortic regurgitation, 463 cases were studied by Willius and Fitzpatrick. The observations covered a period of eight years. Two hundred and ninety-six patients were nonsyphilitic, while 167 were syphilitic. The results of this study are as follows: Cardiac mortality in the complete group: (*a*) nonsyphilitic aortic regurgitation, 39 per cent.; (*b*) syphilitic aortic regurgitation, 46 per cent. Cardiac mortality with T-wave negativity in Derivation I: (*a*) nonsyphilitic aortic regurgitation, 76 per cent.; (*b*) syphilitic aortic regurgitation, 87 per cent. Cardiac mortality with T-wave negativity in Derivations I and II: (*a*) nonsyphilitic aortic regurgitation, 67 per cent.; (*b*) syphilitic aortic regurgitation, 63 per cent. Cardiac mortality with T-wave negativity in Derivations II and III: (*a*) nonsyphilitic aortic regurgitation, 44 per cent.; (*b*) syphilitic aortic regurgitation, 64 per cent. Cardiac mortality with T-wave negativity in Derivations I, II and III: (*a*) nonsyphilitic aortic regurgitation, 40 per cent.; (*b*) syphilitic aortic regurgitation, 88 per cent. Cardiac mortality with composite T-wave negativity: (*a*) nonsyphilitic aortic regurgitation, 56 per cent.; (*b*) syphilitic aortic regurgitation, 76 per cent. Cardiac mortality with aberrant Q R S complexes in all derivations: (*a*) nonsyphilitic aortic regurgitation, 86 per cent.; (*b*) syphilitic aortic regurgitation, one case. (The patient died from heart disease.) Cardiac mortality with auricular fibrillation: (*a*) nonsyphilitic aortic regurgitation, 50 per cent.; (*b*) syphilitic aortic regurgitation, two cases. (Both patients died from heart disease.) Cardiac mortality with delayed A-V conduction: (*a*) nonsyphilitic aortic regurgitation, 69 per cent.; (*b*) syphilitic aortic regurgitation, three cases. (Two patients were traced: one had died from heart disease; one was worse.) Cardiac mortality in cases in which the foregoing graphic abnormalities were absent: (*a*) nonsyphilitic aortic regurgitation, 24 per cent.; (*b*) syphilitic aortic regurgitation, 32 per cent.

Treatment of Acute Mercuric Chlorid Poisoning.—The treatment of acute mercuric chlorid poisoning outlined by Oliensis consists in putting the patient to bed, administration of milk and the whites of eggs; gastric lavage, potassium citrate, sodium bicarbonate, Fischer's solution; hot pack; soft diet and water in quantity sufficient to satisfy thirst. Magnesium sulphate every morning in dose sufficient to secure two stools daily.

Unusually High Blood Sugar in Diabetes.—A blood sugar analysis in Pitfield's case showed that the urine contained an unprecedented amount of glucose. The reading of the Duboscq colorimeter, done by artificial light and a ground glass mirror, was over 1,700 mg. to 100 centimeters of blood, by the Folin Wu method. Insulin was at once administered by vein. The first dose was 40 units; forty-five minutes later 50 additional units were given by the same route. In one hour after the first dose of insulin, the blood sugar content had fallen to 842. However, the patient sank slowly and in another hour he was dead. Fifty units more of insulin had been given in the meantime.

Nebraska State Medical Journal, Norfolk

9: 417-456 (Nov.) 1924

Acute Head Injuries. J. W. Duncan, Omaha.—p. 417.
Hospital Standardization in Its Application. E. G. Zimmerer, Lincoln.—p. 429.
Effect of Operation on Insurance Risk. A. C. Stokes, Omaha.—p. 432.
Postoperative Care. L. M. Stearns, Kearney.—p. 436.
Roentgen-Ray Findings in Mediastinal Diseases. C. H. Ballard, Omaha.—p. 438.
Intracranial Pressure. B. F. Williams, Lincoln.—p. 440.
Pneumonia in Children. F. Clarke, Omaha.—p. 443.
Industrial Bone and Joint Disabilities. C. C. Johnson, Lincoln.—p. 445.
*Erysipelatous Necrosis of Eyelids. H. Gifford, Omaha.—p. 447.

Erysipelatous Necrosis of Eyelids.—In Gifford's case the erysipelatous abscess formation and necrosis of the eyelids followed Vincent's angina. Recovery ensued.

New York State Journal of Medicine, New York

24: 915-970 (Nov.) 1924

*Dick Test and Active Immunization with Scarlet Streptococcus Toxin. A. Zingher, New York City.—p. 915.
*Newer Viewpoints in Infant Feeding. E. A. Park, New Haven, Conn.—p. 921.
Endocrine Therapy in Pediatrics. F. B. Talbot, Boston.—p. 927.
General Principles of Endocrine Diagnosis and Therapy. L. Berman, New York City.—p. 929.
Glandular Fever. W. H. Sweeting, Savannah.—p. 932.
Common Interests and Obligations. P. B. Brooks, Albany.—p. 934.
Medical Societies and Their Relations to Problem of Medical Licensure. G. W. Whiteside, New York City.—p. 936.

Dick Test.—The Dick test is regarded by Zingher as being a reliable method for determining susceptibility and immunity to scarlet fever. In his experience with the test in more than 7,700 cases, eight positive reactors and none of the negative reactors have developed scarlet fever. The rapid appearance of the reaction in from eight to twelve hours is of great clinical value for this purpose. The Dick test helps in the diagnosis of doubtful cases of scarlet fever. The Dick test applied to 232 cases of scarlet fever showed that 91.3 per cent. gave positive reactions during the early stages of the disease and negative reactions during convalescence. There were nineteen patients who gave a persistent positive reaction; of these two developed scarlet fever subsequently. Of the remaining seventeen patients, twelve did not desquamate.

Breast Milk Not Good Repair Food.—According to Park, breast milk is a poor repair food. After wasting illnesses infants may not gain for long periods if fed only breast milk, but will gain at once if cow's milk protein is added to the breast milk feedings or mixed feeding is begun. The same phenomenon is sometimes observed in premature infants who fail to gain on breast milk alone but gain on combinations of breast milk and cows milk feedings. The reason seems to be that the protein and salts in breast milk are not adequate to meet the abnormal requirements of these abnormal infants.

New Orleans Medical and Surgical Journal

77: 177-216 (Nov.) 1924

Radiodermatitis; Treatment. A. U. Desjardinis and F. L. Smith, Rochester, Minn.—p. 177.
Spasm of Accommodation. H. L. Arnold, Meridian, Miss.—p. 184.
Diagnosis in Gynecology. P. Michinard, New Orleans.—p. 185.
Some Ideals in Tonsillectomy. E. F. Howard, Vicksburg, Miss.—p. 189.
Acute Abdomen, from Medical Standpoint. A. A. Herold, Shreveport.—p. 192.
Eyes and General Practice. B. S. Guyton, Oxford, Miss.—p. 196.
New Operation for Correction of Squint. A. Whitmire, New Orleans.—p. 200.
Crude Statistics. J. G. Dempsey, New Orleans.—p. 203.

Northwest Medicine, Seattle

23: 489-538 (Nov.) 1924

Tetany Cases. G. C. Miller and H. C. Cameron, Seattle.—p. 489.
Medical Problems of Workmen's Compensation Law. L. E. Worstell, Boise.—p. 493.
Rickets. D. M. Dayton, Tacoma.—p. 498.
Constipation in Children. N. H. Nicholson, Seattle.—p. 501.
Common Sense in Infant Feeding. P. D. McCormack, Spokane.—p. 504.
*Complications Following Use of Mercurochrome-220 Solutions. B. N. Wade, Portland.—p. 508.
Flow of Structure in Relation to Age and Disease. H. Oertel, Montreal.—p. 509.
Acute Poliomyelitis. K. Winslow, Seattle.—p. 511.
Treatment of Convalescent or Intermediate Period of Acute Poliomyelitis. R. Anderson, Seattle.—p. 513.
Relation of Prolonged Coagulation Time to Hemorrhage from Tonsillectomy. J. H. Harter, Seattle.—p. 516.
Three Hundred Cases of Blood Transfusion. W. C. Speidel, Seattle.—p. 518.
Goiter Prevention as Applied to Washington. E. S. West, Yakima.—p. 520.
Quacks and Quackery. G. A. Fuson, Everett.—p. 521.
Cures, Cults, Fads and Quacks. W. H. Stephan, Dillon, Mont.—p. 523.

Complications Following Use of Mercurochrome-220 Soluble.—Wade reports a case of severe stomatitis and acute nephritis following the use of mercurochrome-220 soluble. The drug was injected three times weekly into an ovarian cyst cavity, 1 ounce of a 5 per cent. solution being used. After three weeks' use of this solution, the patient began to complain of soreness in her gums and moderate salivation. The mercurochrome was immediately discontinued, but the stomatitis continued to grow worse. Her breath became

extremely foul, the teeth loosened, and her mouth became so painful and tender that she could scarcely talk. She had some nausea and diarrhea, which lasted several days. She developed some edema of the face and ankles, and the urine contained albumin and casts. The drainage from the cyst continued profusely and continued to be stained a deep red color for more than two weeks after the use of mercurochrome had been discontinued. The patient gradually recovered. Following the removal of the cyst, the patient developed an acute streptococcus septicemia and died on the fifth postoperative day. A necropsy showed the absence of a diffuse peritonitis, and the operative field appeared clean.

Ohio State Medical Journal, Columbus

20: 673-744 (Nov.) 1924

*Practical Aspects of Certain Phases of Treatment: Organotherapy and Physiotherapy. G. B. Eusterman, Rochester, Minn.—p. 677.
Chronic Gastric Ulcer: Surgical Treatment. H. G. Sloan, Cleveland.—p. 680.
Medical Anamnesis in Psychoses. A. R. Vonderahe, Cincinnati.—p. 686.
Coagulation and Bleeding Times of Infants. A. H. Dunham, Dayton.—p. 689.
Importance of Education Publicity in Care of Eyes. F. H. Cook, Akron.—p. 691.
Sterility. P. M. Spurney, Cleveland.—p. 694.
*Antistreptococcic Serum in Treatment of Facial Erypsipelas. H. J. Lavender, Cincinnati.—p. 697.
Report of Child Crying in Utero. C. M. Harrison, Napoleon.—p. 700.

Organotherapy and Physiotherapy.—The therapeutic action of only a few of the extracts or hormones of the incretions is established with any degree of certainty. Eusterman says there seems to be no justification for the popularity of polyglandular treatment. The usual polyglandular formulas contain some or all of the following preparations: desiccated thyroid, extract of the posterior lobe of the pituitary, thymus, epinephrin and extract of testicles or ovaries. Oral administration is the rule. If the patient perchance is in a hypothyroidal state, the thyroid component will prove efficacious, and if not, the amount present will do no harm. Pituitary extract is largely inactive when given by mouth, except as regards its effect in reducing carbohydrate tolerance in case of pituitary tumor deficiency; this action would be assisted by the thyroid, but it is difficult to see how it would benefit the patient. It is not known whether the thymus even has an internal secretion, nor is it known whether its extracts have any therapeutic action. Epinephrin when given by mouth may be of some benefit in gastric hemorrhage or to relax esophageal spasm, but otherwise its effect is unimportant. Finally, nothing is known definitely about the action of the extracts of the gonads. It seems that a healthy skepticism is especially necessary in this form of treatment, as otherwise deserved opprobrium may be brought on the profession. Eusterman predicts that physiotherapy in the future will assume an increasing importance in our therapeutic armamentarium.

Antistreptococcic Treatment of Erysipelas.—Lavender has analyzed results in 250 cases of facial erysipelas, of which number 150 patients had the local applications and 100 had the combined local and serum treatment. The applications used aside from the soothing and greater comfort afforded the patient, prevent, or control to a great extent, the formation of abscesses. Only 7 per cent. of all the cases were victims of this sequel. In this series the Burrow's mercuric chlorid solution was selected only. During the period of desquamation, boric ointment, 5 per cent., was used. Lavender finds that there are decided advantages in the use of antistreptococcic serum in the treatment of facial erysipelas: The actual course of the disease and the period of convalescence are reduced. The treatment is well borne by the patient. The deleterious effects are almost nil. However, the serum is not effective as a preventive measure.

Philippine Islands Medical Association Journal, Manila

4: 327-363 (Sept.) 1924

Clinico-Pathologic Findings in 1,065 Surgical and Gynecologic Cases. C. Reyes.—p. 327.
Some Difficulties in Way of Extending Hospital Service in Philippines. S. Y. Orosa.—p. 334.
Typhoid Fever Problem in Manila. C. B. Lara, B. de Vera, J. C. Samson and F. C. Eubanas.—p. 341.

Radiology, St. Paul

3: 365-456 (Nov.) 1924

Osseous Dystrophies. H. P. Doub and C. W. Peabody, Detroit.—p. 365.
Pathologic Fractures. B. Allen, Iowa City.—p. 375.
Adamantine Epithelioma. J. T. Murphy, Toledo, Ohio.—p. 377.
Bone Findings in Chloroma. R. G. Allison, Minneapolis.—p. 388.
Deep Therapy Simplified. C. H. Nims, Hot Springs, Ark.—p. 394.
Vacuum Measurements of Roentgen-Ray Tubes. O. Weinreb, Chicago.—p. 396.
*Effect of Roentgen Ray and Radium on Malarial Parasite in Vitro. L. J. Menville, New Orleans.—p. 399.
New Department of Radiology of St. Louis City Hospital. L. R. Sante, St. Louis.—p. 402.
*Occupational Hazards of Radiologist. R. D. Carman and A. Miller, Rochester, Minn.—p. 408.
Radiologic Study of Soft Tissue Tumors. C. G. Sutherland, Rochester, Minn.—p. 420.
Advanced Trouble Shooting: "Phasing In" a Disk. C. B. Horsley, Pittsburgh.—p. 425.
Roentgen-Ray Treatment of Hyperthyroidism and Toxic Goiter. C. A. Simpson, Washington, D. C.—p. 427.
Differential Diagnosis of Periosteal Bone Lesions. J. C. Bloodgood, Baltimore.—p. 432.
Method of Mounting Radiographs, and Tests for Vitality. R. C. Boyd, Denver.—p. 434.

Effect of Irradiation on Malaria Parasite.—The experiments reported on by Menville demonstrate that the malaria parasites are not killed or affected directly by roentgen ray or radium. If, therefore, benefit is to be obtained through these measures, it must be accomplished by reactionary phenomena produced by the host as a result of the roentgen ray and not by the rays per se.

Occupational Hazards of Radiologist.—Carman and Miller are convinced that many radiologists are being harmed in their daily work and are menaced by graver injuries. To avert these injuries it is necessary, first of all, that the radiologic worker be impressed so thoroughly with his danger that he will take adequate precautions. Either the methods of protection now in common use are not effective, or the worker is careless in their application. The worker should be shielded not only from direct rays, but also from secondary irradiation which may reach him from any angle. For the radiographer efficient protection can be secured by simple means, but in fluoroscopy and radiotherapy more elaborate measures are required. Protection from irradiation and prevention of electric shocks have been given more attention of late by the manufacturers of roentgen-ray apparatus. Even with all practicable safeguards, a certain degree of exposure cannot be evaded. Laboratories doing a large amount of work should, therefore, have a reserve personnel to permit alternation of service or frequent holidays. Workers should repeatedly be cautioned to receive the least possible amount of irradiation consistent with the performance of their duty. Modern life, regardless of occupation, has an abundance of risks, and additions are superfluous. Besides taking all reasonable precautions, workers should have frequent medical examination.

Rhode Island Medical Journal, Providence

7: 167-184 (Nov.) 1924

What Young Physicians May Learn from Hughlings Jackson. J. E. Donley, Providence.—p. 167.
Preschool Child as Public Health Problem. R. M. Smith, Boston.—p. 174.

Southwestern Medicine, Phoenix, Ariz.

8: 517-576 (Nov.) 1924

History of Medical Department of U. S. Army and Some Noteworthy Medical Officers. M. A. W. Shockley.—p. 517.
Life of Walter Reed. S. M. Browne.—p. 523.
William Beaumont. L. A. Lavanture.—p. 527.
General George Miller Sternberg. F. E. Gessner.—p. 530.
William Crawford Gorgas. M. A. W. Shockley.—p. 534.
Gangrenous Type of Postoperative Pneumonia. W. S. Lemon and A. E. Mahle, Rochester, Minn.—p. 536.
Ambulatory Treatment of Peptic Ulcer. E. C. Fishbaugh, Los Angeles.—p. 552.
Diseases Simulating Tuberculosis. A. M. Forster and T. J. Kinsella, Colorado Springs.—p. 557.
Diet After Weaning. M. K. Wylder, Albuquerque.—p. 561.
Lenticular Dystonia. E. A. Duncan, El Paso.—p. 564.

Virginia Medical Monthly, Richmond

51: 461-528 (Nov.) 1924

Fibroid Tumors. J. O. Polak, Brooklyn.—p. 461.
Place of Chronic Sepsis in Future of Medicine. R. L. Raiford, Sedley.—p. 464.

Some Things for Consideration of General Practitioner. B. C. Keister, Washington, D. C.—p. 468.
Interaction of Specific and Nonspecific Factors in Allergic Disease. W. T. Vaughan, Richmond.—p. 472.
*Ethylene-Oxygen Anesthesia. Report of 450 Cases. J. S. Horsley, Jr., Richmond.—p. 476.
Urinary Lithiasis. N. H. Copenhaver, Bristol, Tenn.—p. 481.
Treatment of Recent Fractures. J. C. Motley, Abingdon.—p. 485.
Significance of Some Early Urologic Lesions. W. O. Poindexter, Newport News.—p. 488.
*Better Obstetrics. B. Lankford, Norfolk.—p. 491.
One Hundred and Seven Consecutive Laparotomies for Pelvic Disease in Women. G. H. Reese, Petersburg.—p. 495.
Intracranial Hemorrhage in New-Born. J. O. Boyd, Roanoke.—p. 496.
Ocular Factor in Headaches. F. M. Dillard, Alexandria.—p. 497.
Treatment of Inguinal Hernia in Infants and Young Children. L. F. Watson, Chicago.—p. 500.
Two Cases of Resections of Stomach Under Local Anesthesia. J. S. Horsley, Richmond.—p. 502.
Report of Suicide with Strange Effect on Skull. W. H. Ribble, Wytheville.—p. 504.
*Colles' Fracture with Unusual Etiology. J. B. H. Waring, Blanchester, Ohio.—p. 504.

Ethylene-Oxygen Anesthesia.—Horsley's experience has convinced him that ethylene-oxygen anesthesia is the best routine general anesthetic yet known. It produces a sleep more nearly normal than does any other general anesthetic, and has its most distinct advantage in the poor operative risks. Carbon dioxid gas may well be used in anesthesias to produce a more even course and more complete relaxation. Ethylene combines well with other anesthetics, a fact which is at times very helpful.

Better Obstetrics.—A constructive suggestion offered by Lankford in the effort to improve the practice of obstetrics is that more general medical societies should devote sectional meetings to obstetrics and pediatrics combined. More obstetricians and more physicians interested largely in obstetrics should seek and obtain admission to the larger sectional or national obstetric societies. A minimum standard of obstetric care should be established by the profession, such as could be attained by all who offer for or accept obstetric cases. If, after a fair lapse of time, it be found that the profession is not living up to that standard, the public should be taken into confidence, just as it has been in the standardization of surgery and hospitals.

Colles' Fracture.—Waring's patient, aged 80, attempted to pull up a long-rooted weed in her garden. It gave way suddenly. The back of the hand was thrown back sharply, striking an old cornstalk, and a typical Colles' fracture, with slight displacement of the fragments, resulted.

Texas State Journal of Medicine, Fort Worth

20: 368-418 (Nov.) 1924

Hay-Fever. R. L. Keller, Dallas.—p. 375.
Causalgia. J. S. Davis, Dallas.—p. 378.
*Reconstruction of Internal Lateral Ligament of Knee. J. R. Bost, Houghton.—p. 381.
Newly-Born. L. R. DeBuys, New Orleans.—p. 384.
School Follicles. O. H. Judkins, San Antonio.—p. 387.
Rectal and Surgical Clinics of England. C. Rosser, Dallas.—p. 389.
Acute Middle Ear Infections in Children. E. M. Sykes, San Antonio.—p. 394.
Municipal Water Supplies. J. B. Hawley, Fort Worth.—p. 397.
Anatomy of Female Pelvic Floor Relative to Laceration and Repair. W. W. Looney, Dallas.—p. 402.

Reconstruction of Internal Lateral Ligament of Knee.—In a case cited by Bost a modification of the Edwards and Wilson operations was used successfully. The semitendinosus was divided. The distal part of the tendon was dissected free down to its insertion and the tendon scraped free of loose tissue and scarified. A groove was prepared at the superior insertion of the ligament and the tendon sutured into it, the sutures passing through the periosteum and cortex. Next, a section of fascia was brought down over the superior end of the implanted tendon, placed in its groove and the flap of periosteum and cortex sutured over it. The folded flap of fascia was thoroughly scarified and buried under as much tension as possible in a groove in the tibia at a point just posterior to the tendon of the semitendinosus, acting as the posterior fasciculus of the ligament. These transplanted structures were sutured to the capsule on either side throughout their entire length. The distal end of the superior portion of the semitendinosus was tightly sutured to the sartorius; the fascia and the skin closed.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Tuberculosis, London

18: 133-188 (Oct.) 1924

*Training Colonies for Tuberculous. F. N. K. Menzies.—p. 133.
Evolution of Tuberculosis Village Settlement. P. C. Varrier-Jones.—p. 141.
*Care and After-Care of Tuberculous Persons. F. G. Bushnell.—p. 149.
New Adjunct (Angiolymphe) in Treatment of Tuberculosis. J. Walker.—p. 154.

Training Colonies for the Tuberculous.—Menzies stresses the fact that the keynote of the tuberculosis dispensary, tuberculosis school, sanatorium, and training colony is detuberculization and recovery, their purpose being to anticipate events and prevent the development of grosser manifestations. The modern conception of the etiology of tuberculosis emphasizes strongly the possibility and the significance of early recognition of the infection, and deliberate treatment with a view to detuberculization at the earliest possible moment.

After-Care of Tuberculous Persons.—Bushnell holds that no training center or colony or workshop should be approved or established which is not definitely under medical supervision and control. They should be regarded as commercial sanatoriums for sick men, and not as business propositions in the ordinary sense.

British Medical Journal, London

2: 933-982 (Nov. 22) 1924

Renaissance of Midwifery. H. R. Spencer.—p. 933.
Lethargic Encephalitis. E. F. Buzzard.—p. 937.
*Aneurysm of Branch of Renal Artery. R. P. Rowlands.—p. 939.
Plea for Earlier Operative Treatment of Acute Otitis Media. F. H. Diggle.—p. 940.
*Mulespinners' Cancer and Mineral Oils. A. Leitch.—p. 941.
Chimney-Sweeps' Cancer. A. Leitch.—p. 943.
*Study of B. Acidophilus in Human Feces. J. Cruickshank and D. W. Berry.—p. 944.
Implantation or Enrichment of B. Acidophilus and Other Organisms in Intestine. R. P. Smith.—p. 948.

Aneurysm of Branch of Renal Artery.—In Rowland's case a spontaneous aneurysm of a branch of the renal artery was the source of a symptomless hematuria of three weeks duration. There was no history of recent injury or illness. The bleeding had begun suddenly. It was so profuse and continuous that it was thought at first to come from the uterus; later it became intermittent and clearly came from the bladder during micturition. There was no history of renal pain, or colic, nor was there any palpable enlargement or tenderness of either kidney. A complete roentgen-ray examination failed to reveal any urinary calculus. Cystoscopy was difficult owing to the large amount of blood clot in the bladder, but ultimately it was proved that the blood came in large quantities from the left ureter and that normal urine issued from the right. Nephrectomy was performed. On opening the kidney and its pelvis from end to end, black streaks of altered blood and an infarct were seen in the renal substance, and a ruptured sacculated aneurysm, the size of a large pea, was found partly on the surface of one of the lower renal papillae. It arose from one of the intrarenal branches of the renal artery.

Oils Cause Mulespinners' Cancer.—Experiments reported on by Leitch show that refined mineral oils, such as are used for the lubrication of machinery, are capable of producing skin cancer after long exposure, and they go far to prove the contention of Southam and Wilson that mulespinners' cancer is the result of several years of contact with lubicating oils. The scrotum is exclusively affected; the thighs and the arms escape.

Bacillus Acidophilus in Feces.—The results of the work done by Cruickshank and Berry indicate that the acid-resistant bacilli in adult or infant feces show a considerable range of morphologic appearances. An attempt has been made to group these organisms by their biochemical reactions and to determine some of their serological relationships. It is suggested that the term *"B. acidophilus"* covers a considerable group of organisms and that numerous strains may exist even in one sample of stool.

China Medical Journal, Shanghai

38: 793-876 (Oct.) 1924

*Influence of Cod-Liver Oil on Calcium and Phosphorus Metabolism in Tetany. L. Shih-Hao.—p. 793.
*Protein Therapy in Typhoid and Paratyphoid. J. H. Foster.—p. 805.
Indications for Operation in Glaucoma. D. V. Smith.—p. 816.
Anomalies Found in Fecal Examinations in China. E. C. Faust.—p. 820.
Diagnosis of Adenocarcinoma of Breast. H. P. Chu.—p. 824.
Inguinal Hernia: Ova of Schistosoma Japonicum in Hernial Sac. A. L. Ludlow.—p. 829.
Arteriovenous Aneurysm of Left Popliteal Artery and Vein Following Gunshot Wound. J. Jones.—p. 832.

Influence of Cod Liver Oil on Calcium Metabolism in Tetany.—Shih-Hao believes that in certain cases of tetany, the low calcium content of blood and cerebrospinal fluid is probably due to deficient absorption of this element through the intestines. Low calcium content means low calcium ion concentration, which is responsible for the symptoms. Cod liver oil, when given in such cases, increases the retention of calcium and, to a lesser extent, of phosphorus. The urinary excretion of these elements is at the same time increased, indicating an increased absorption from the intestines.

Foreign Protein Therapy in Typhoid and Paratyphoid.—Foreign protein therapy has been tried by Foster and others in a series of forty-eight cases of typhoid and paratyphoid fever in the Hunan-Yale Hospital, Changsha. Intravenous injections of typhoid vaccine and intramuscular injections of milk were used. The following results were obtained: In 27 per cent. the course of the disease was interrupted and recovery occurred by crisis. In 23 per cent. there was a drop in temperature and recovery by lysis. In 6 per cent. there was a break in the temperature, but without shortening its course. In 44 per cent. the course of the disease was not affected. The very toxic cases, as a rule, showed little response to this treatment. No ill effects from the treatment were seen.

Edinburgh Medical Journal

31: 541-604 (Oct.) 1924

*Tetania Parathyreopriva and Idiopathic Tetany; Functions of Parathyroids. N. Paton.—p. 541.
*Hypertelorism. D. M. Greig.—p. 560.

Function of Parathyroids.—The evidence adduced by Paton apparently shows the increased muscular tone which generally follows removal of the parathyroids indicates that these structures exercise an influence on the tonus of skeletal muscles. The marked increase of muscle tone and the close similarity of the other symptoms to those produced by removal of the parathyroids which follow the administration of guanidin and its methyl compounds seems to show that they play a part in the maintenance of that tone. The fact that these substances are increased in the blood and urine after parathyroidectomy, and in the urine in idiopathic tetany suggests that their metabolism is controlled by the parathyroids and that it is through them that muscular tone is regulated. The immediate action of these substances in one adequate dose is undoubtedly to stimulate the efferent neurons of the spinal cord, and in a moderate dose to increase the excitability of the neuromyons. But with repeated doses, they apparently become anchored on these structures to produce a condition of facilitated activity, and this is probably their chief mode of action in tetany. That a decrease in the calcium of the blood is not the primary factor in the causation of the symptoms is shown by the effect of bleeding and transfusing a calcium-free solution, and further by the fact that a decrease in the calcium of the blood may occur without tetany, e. g., in uremia, and that tetany may occur without a marked fall in the calcium. There is no conclusive evidence to show whether this fall, when it occurs, is a result of the increase in the methyl-guanidin or a concomitant of it. There is no indication that the increase in the phosphates plays a direct part in the production of symptoms.

Hypertelorism.—The outstanding peculiarity of the cranial deformity for which Greig proposes the name ocular hypertelorism, or briefly, hypertelorism, is the great breadth between the eyes. Two cases are cited and the anatomy of the skulls is reviewed in detail. In the skull the most striking peculiarity is the size of the anterior nasal aperture with the great breadth of the cribriform plates. Hypertelorism is an entity having a definite origin, a definite course. It is dependent on a growth disturbance of a minute portion of the embryonic cranial tissue, in the prechordal part of the cranium, from which consecutively certain deformities are produced. The deformities may vary in degree according to the degree of primary defect, but they are otherwise definite and fixed, and nothing else can simulate them.

Indian Medical Gazette, Calcutta

59: 481-532 (Oct.) 1924

Campaign Against Mosquitoes; Back Bay Reclamation Scheme, Bombay. B. S. Chalam.—p. 481.
Spontaneous Absorption of Amebic Abscess of Liver Under Emetine Therapy. A. S. Fry.—p. 488.
*Problem of Cure in Kala-Azar. L. E. Napier.—p. 492.
Saponification of Bodies in United Provinces of Agra and Oudh. J. P. Modi and D. N. Chatterji.—p. 504.
Typhus Fever in Agency Tracts, Madras Presidency. J. Cunningham and J. H. Theodore.—p. 506.

Cure in Kala-Azar.—Napier analyzes 153 cases. Thirty-four patients died. Fourteen of these died without receiving specific treatment, six died after being treated as a last resort and fourteen died during treatment. These latter were moderately advanced cases. Napier says that there are no absolute criteria of cure, either clinical or otherwise; the only satisfactory evidence of cure is the subsequent history of the patient. Some patients are definitely resistant to treatment with the antimony tartrates and should, therefore, not be provided for in ordinary rules for treatment. The maximum total dose of sodium or potassium antimony tartrate that is necessary to effect a cure in any but a definitely resistant case is 4 gm. per hundred pounds body weight of the patient. This maximum course of treatment can under certain circumstances be modified. The Anglo-Indian appears to be more resistant to treatment than the Indian or even the European. Previous irregular treatment appears to encourage resistance to treatment, whereas "relapsed" cases do not show this resistance. The disease appears to be equally amenable to treatment at all stages.

Irish Journal of Medical Science, Dublin

433-480 (Oct.) 1924

Cup-and-Ball Aneurysm Needle for Deep Ligations. A. K. Henry.—p. 433.
Medical Aspects of Recent Advances in Biology of Sex. F. W. R. Brambell.—p. 436.

481-528 (Nov.) 1924

Psychotherapy in Practice. C. P. Smyly.—p. 481.
*Sigma and Wassermann Reactions Compared in 1,000 Tests. J. W. Bigger.—p. 495.
*Case of Cerebellar Hemorrhage. C. J. C. Earl.—p. 502.

Comparison of Sigma and Wassermann Reactions.—The comparative results obtained with the Wassermann and the sigma reaction on 1,000 serums are recorded by Bigger. In this series, 14.6 per cent. of disagreements occurred. In sixteen instances some gross error had been made. In fifteen the Wassermann was incorrect; in one the sigma reaction. In an unselected series of cases for diagnosis, the disagreements were only 8.5 per cent. It is suggested that in primary syphilis the Wassermann reaction becomes positive earlier than the sigma reaction. The great majority of the disagreements occur toward the end of treatment, when the Wassermann reaction falls to negative earlier than the sigma reaction. These results strongly suggest that the Wassermann reaction and the sigma reaction bodies are not identical.

Cerebellar Hemorrhage Simulates Lethargic Encephalitis.—The symptoms in Earl's cases were, first, headache and vomiting and then the boy, aged 11, became unconscious. A provisional diagnosis was made of lethargic encephalitis of the fulminative type. Two hours later the boy died suddenly. The postmortem findings were: meninges congested; the left side of the brain was edematous and larger than the right. There was a massive hemorrhage into the left cerebellar lobe, completely filling it and obliterating all traces of its structure. The remainder of the brain was normal, except for edema. The other organs of the body were normal, except for a tiny scar on one flap of the mitral valve. Earl suggests that the cause of the hemorrhage was a tiny sarcoma commencing near a vessel, eroding its wall and being itself destroyed in the disaster which followed.

Annales de l'Institut Pasteur, Paris

38: 851-951 (Oct.) 1924

*Cancer in Plants. J. Magrou.—p. 851.
Preservation of Sterile Bouillon. R. Boiteux.—p. 873.
Nutrition of Bladderwort Utricularia. A. Kiesel.—p. 879.
*Immunization by Way of the Skin. C. Gernez.—p. 892.
The Abderhalden Reaction. Barikine and Zdrodovsky.—p. 909.
*Tuberculosis in Cochin-China. Guérin et al.—p. 915.
*Changes of Reaction of Serum. H. Plotz and M. Schoen.—p. 923.
Pneumococcus Antigens. L. Cotoni and G. Brasic.—p. 937.
*Cholesterolemia. A. C. Marie.—p. 945.

Cancer in Plants.—Magrou confirms Smith's investigations on crown-gall. The analogy with human tumors—especially in the preservation of the original structure in metastases—is striking.

Immunization by Way of the Skin.—Gernez injected human red corpuscles intracutaneously in rabbits, and obtained a production of hemolysins, which differed only quantitatively but not qualitatively from those induced by subcutaneous injection. A still weaker but distinct effect was produced by application of the corpuscles on the shaven skin as a dressing.

Tuberculosis in Cochin-China.—Guérin, Lalung-Bonnaire and Nguyen-Van Khai made Pirquet tests in natives at Cholon in Cochin-China. The percentage of positive results rises with the age up to 35. At this age 92 per cent. reacted.

Changes of Reaction of Serum.—Plotz and Schoen found an increased alkalinity (determined by the p_H) in unsealed samples of serum, and an increased acidity in sealed samples kept in the incubator.

Cholesterolemia.—Marie observed an increase in the cholesterol content of the serum during diphtheria immunization of horses. It was usually associated with weak antitoxin production.

Annales de Médecine, Paris

16: 381-468 (Nov.) 1924

Intestinal Tuberculosis with Pulmonary Tuberculosis. L. Brown and H. L. Sampson.—p. 381.
*Myeloid Leukemia and Chloroma. Pagniez et al.—p. 416.
Pathogenesis of Acidosis. Labbé et al.—p. 431.
Metabolism in Denutrition. E. Moeller.—p. 451.

Case of Myeloid Leukemia Complicated with Chloroma.—Pagniez, Coste and Ravina report a case of leukemia transformed secondarily into chloroma. The boy, aged 10, with splenomegaly and other symptoms, had been treated for several months by irradiations, with rapid decrease in size of the spleen, amelioration of the leukemia, and excellent general condition on discharge. At the sixth month, abruptly appeared pains in the legs, fever, anemia, multiple hyperplasia of various bones, return of the leukemia symptoms, and finally the complete picture of chloroma, fatal in five months. Except for the absence of the green color in the hematopoietic system and the bone tumors, the case was a typical chloroma, clinically and anatomically. The two cases published in Germany of lymphosarcoma and myeloma appearing a few months after the leukemia—with this case—confirm the close connection between the chloroma and the leukemia processes. A striking point in the three cases is the failure of the intensive radiotherapy of the leukemia after a transient benefit. They teach that radiotherapy of leukemia may be dangerous. Pagniez, Coste and Ravina believe that the biologic reaction to repeated roentgen-ray exposures, superimposed on the leukemia factor, induces a tendency to malignant disease. This is considered significant in connection with roentgen-ray cancers.

Archives de l'Institut Pasteur de Tunis

13: 243-365 (Oct.) 1924

*Chancroid. C. Nicolle et al.—p. 243.
*Mycetoma Involving Inguinal Glands. E. Burnet et al.—p. 306.
Publications on Rabies in Last Ten Years. P. Remlinger.—p. 310.

Diagnosis and Vaccine Treatment of Chancroid.—Eight articles in this issue by Nicolle, Durand, Conseil, Jamin and others discuss the advantages of the Reenstierna intradermal differential test for soft chancre, and vaccine therapy. Instead of intramuscular or subcutaneous injection, they found the intravenous route for the streptobacillus vaccine preferable. They give the details of a number of cases which demonstrate the efficacy of this method, even for old and multiple chancroids with complications. They describe the technic for isolating and keeping the Ducrey bacillus, and state that the vaccine from it is as active and as specific, while the technic of treatment with it is simpler, in comparison to Reenstierna's antiserum.

Mycetoma.—This is the thirteenth case of Madura foot that has been under observation at Tunis. Glands in the thigh, inguinal and iliac regions have been invaded during the four years' course. Burnet, Broc, Brun and Jamin have been able to find only three similar instances on record of the spread of the fungus, but they think that the adenitis probably has often escaped detection.

Archives de Médecine des Enfants, Paris

27: 641-712 (Nov.) 1924

*Primary Tuberculosis of Striated Muscles. A. Merlini.—p. 641.
*The Constitution in Relation to Nutrition. B. P. B. Plantenga.—p. 651.
Protein Therapy in Tuberculosis of Young Children. Cieszynski.—p. 662.
Hygiene for Mother and Family. K. Gamgee.—p. 669.
*Case of Anaphylaxis to Linseed. A. Vaz.—p. 674.
Sodium Citrate in Diarrhea of the New-Born. A. Cuadra.—p. 676.
Diarrhea from Swallowed Feather. A. Cuadra.—p. 676.
Review on Vitamins. J. Comby.—p. 678.

Primary Tuberculosis in Striated Muscle.—Merlini referring to a case of clinically primary tuberculosis in the muscles of the calf, in a boy, aged 8, gives a description of the disease. Hematogenous invasion of muscles by tubercle bacilli localizes at first in the connective tissue. The slight local pains are more pronounced in the evening, and disappear during sleep. If the leg muscles are involved, there is limping. The prognosis is not grave, especially if the localization is single and the general condition of the patient is satisfactory. Surgical intervention is the only treatment.

Relation Between the Constitution and Food Tolerance in Infants.—Plantenga discusses the constitutional differences in children from the point of view of tolerance or intolerance to food, studying the reaction of different infants to each element of milk, the reaction to the total amount of nutrients, and also the reaction to infections. He points out that determination of these various kinds of constitutional intolerance has not only a diagnostic value but is important in treatment.

A Case of Anaphylaxis to Linseed.—Vaz observed a case of intolerance to linseed, in the form of a poultice, in a syphilitic girl, 4 years old.

Médecine, Paris

6: 85-168 (Nov.) 1924

Syphilology and Dermatology in 1924. H. Gougerot.—p. 85.
Relapsing Miliary Papulopustular Eruption of the Face. L. Brocq.—p. 102.
Treatment of Ringworm. R. Sabouraud.—p. 108.
*Treatment of Lupus. J. Nicolas and M. Pillon.—p. 113.
Treatment of Weeping Eczema with Rubber Dressings. L. Lortat-Jacob.—p. 118.
Internal Treatment of Psoriasis. A. Louste.—p. 124.
Acquired Pigmentation of the Skin. L. Spillmann and J. Watrin.—p. 126.
Skin Analgesics for Dermatoses and Ulcerations. G. Petges.—p. 130.
Radiotherapy in Psoriasis. A. Lévy-Franckel and Juster.—p. 132.
Syphilitic Pyrexias. Jeanselme and M. Bloch.—p. 137.
General Paralysis. J. A. Sicard and J. Haguenau.—p. 141.
Biologic Reactivation of Wassermann Reaction. Milian.—p. 147.
Incubation Period in Syphilitic Chancre. Lévy-Bing and Gerbay.—p. 150.
Cardiac Rhythm in Syphilis. C. Fouquet.—p. 154.
*Quantitative Bordet-Wassermann Tests. E. Peyre.—p. 156.
Gangrenous Chancroid. L. Hudelo.—p. 162.

Practical Methods in Treatment of Lupus.—Nicolas and Pillon describe radical ablation, ignipuncture, scarification and radiotherapy.

Quantitative Bordet-Wassermann Tests.—Peyre demonstrates the value of determining the minimum quantitative serum sufficient to cause deviation of complement. The progress of the treatment may be easily controlled by this method of serial dilutions.

Revue Franç. de Gynécologie et d'Obstét., Paris

19: 545-576 (Sept. 25) 1924

*Prenatal Welfare Work. H. Paucot.—p. 545.

Prenatal Care.—Paucot emphasizes the importance of a national organization for prenatal welfare work. Early and

continual supervision of the mother may insure the viability and the vitality of the fetus, and decrease the rate of stillbirths, as well as the mortality in the first month of life. A similar organization in Lille reduced in two years almost completely the maternal mortality, and lowered the maternal morbidity from 13 to 5 per cent. Stillbirths dropped from 7 to 5 per cent., and the mortality in the first months from about 4.5 to 3.5 per cent. An increase of 3 per cent. of lives was obtained, that is, systematic supervision of 700 pregnant women resulted in the saving of over twenty lives.

Archivio Italiano di Chirurgia, Bologna

10: 113-252 (Sept.) 1924

Effect on Blood of Blood Transfusion. L. Carmona.—p. 113.
Endothelioma and Perithelioma of the Breast. G. Forni.—p. 140.
*Study of Gastro-Enterostomy. M. Bufalini.—p. 170.
*Growth of Skeleton After Removal of Parathyroids. V. Ghiron.—p. 238.

Improved Technic for Gastro-Enterostomy.—Bufalini has been studying under long and repeated roentgen control twenty patients after gastro-enterostomy by various technics. The static and mechanical conditions seemed to be most favorable at the time and permanently when a short loop was used and it was sutured to provide a vertical passage with a parapyloric opening, the incision ample.

Bone Growth in Parathyroidectomized Dogs.—Ghiron left the internal parathyroid, removing the external and the adherent portion of the thyroid in young dogs. The growth of the bones was arrested, all the elements showing the deleterious effects of the loss of the parathyroids, the animals dying of cachexia in less than four months. These experiences seem to sustain the theory that the parathyroids and thymus have much to do with the development of rickets.

10: 433-584 (Oct.) 1924

*Pedunculated Transplants of Glandular Organs. D. Maragliano.—p. 433.
Superficial Epitheliomas of the Skin. L. Martinotti.—p. 471.
*Physiology and Pathology of the Prostate. L. Torchiana.—p. 557.
Hydatid Cyst in the Breast. A. Zancani.—p. 574.

Pedunculated Transplants of the Testes.—Maragliano's experiments with autografts were made on dogs. The pedunculated glands healed and survived incomparably better than the free transplants.

The Physiology and Pathology of the Prostate.—Torchiana found it a comparatively simple matter to divert the sperma in dogs by implanting the vas deferens in the urethra.

Anales de la Facultad de Medicina, Montevideo

9: 699-798 (Aug.) 1924

Case of Congenital Verbal Deafness. B. Etchepare.—p. 699.
Prophylaxis of Scarlet Fever. R. Berro and Ponce de León.—p. 705.
*Morquio's Pseudo-Kernig Sign. Escardó y Anaya.—p. 720.
Intradermal Test for Hydatid Cyst. M. A. Jaureguy.—p. 728.
Rupture of Duodenum from Torsion Below. V. Pérez Fontana.—p. 745.
Wassermann's Tuberculosis Reaction. J. Torrazza.—p. 754.
The Laws Regulating Onset of Cancer. C. Stajano.—p. 759.

Morquio's Pseudo-Kernig Sign.—In some cases of arsenical polyneuritis and constantly in painful epidemic poliomyelitis, Morquio noticed that—although there was no contracture of the extended legs—the patients resisted with evidence of pain and distress and bending the head backward, every attempt to raise the trunk to a sitting posture, unless the legs were passively flexed. Then the trunk could be painlessly flexed. This Morquio sign indicates a lesion of the spinal nerve. The true Kernig is a sign of irritation of the roots; the Lasègue, of a peripheral nerve. Pain in the nerve roots and meninges is local and spontaneous, and the legs cannot be extended while sitting up. With the Morquio sign, on the other hand, there is no contracture, the legs are flaccid, and the pain is in the spinal nerve. Flexing the trunk exaggerates the pain from this funiculitis, and causes paravertebral contracture and distress, unless the strain on the spine is relieved by passive flexing of the legs.

Lisboa Médica

1: 433-492 (Sept.) 1924

*The Rôle of the Suprarenals. J. Fontes.—p. 433.
Pseudomyxoma of the Peritoneum. Amandio Pinto.—p. 452.
Prevention of Deformity from Tuberculous Joints in Children. A. de Menezes.—p. 465.
*Polydipsia in Epidemic Encephalitis. M. Moreira.—p. 475.
Prophylaxis and Treatment of Whooping Cough. L. de Castro Freire.—p. 483.

The Secretion of the Suprarenals.—Fontes witnessed a depressing action from commercial epinephrin on the surviving duodenum in suprarenalectomized rabbits (also in experiments in vitro), while a fresh extract of the whole suprarenal had a stimulating action. His research testifies anew to the controlling influence exerted by the suprarenals on the fatigue of smooth muscle. The poisons generated by fatigue seem to be annulled or destroyed by the suprarenals, but he insists that epinephrin is not responsible for this action. The fact that the suprarenal cortex—but not the medulla—seems to be indispensable to life, invalidates epinephrin still further, and indicates that the true active secretion of the suprarenal has not been discovered as yet.

Polydipsia in Epidemic Encephalitis.—Moreira relates that in a chronic case, in a girl of 12, the symptoms were of the striatal type, with change of character, but the tuber seemed to be intact and the mind active. Polydipsia was pronounced, with an output of 13 liters of urine until forcible restriction of the intake of water. The complete arrest of the polyuria after this confirmed its cortical origin.

Semana Médica, Buenos Aires

2: 793-844 (Oct. 9) 1924

Plea for Child Welfare State Department. Aráoz Alfaro.—p. 793.
*The Biogenesis of Tuberculosis. J. W. Howard.—p. 801.
Diagnosis of Cancer of the Heart. G. Bosco.—p. 804.
*Pulmonary Tuberculosis in Child. J. C. Navarro.—p. 808.
Traumatic Rupture of Kidney. Salleras and Valls.—p. 811.
*Recklinghausen's Disease in Children. Acuña and Bazán.—p. 813.
Grave Anemia from Masked Malaria. J. R. Goyena.—p. 833.

Treatment of Tuberculosis.—Howard declares that the biogenesis of tuberculosis has not been sufficiently heeded in treatment hitherto. He ascribes the difference between the comparatively mild, localized inflammatory form, with a tendency to fibroid changes, and the form with a rapidly destructive course to the balance between the normal elements in the blood, the lipases, proteases, antiferments and cholesterol. When the balance is upset, the infection proceeds with greater virulence, while with an approximately normal balance the infection is held under control to a certain extent. His experimental research and clinical experience have apparently demonstrated the feasibility of supplying specific and physiologic ferments and antiferments, and thus aiding the organism in fighting the invasion. Tuberculin and many drugs used in tuberculosis induce congestion in the foci, with increased production of proteases, thus upsetting the balance still further, and promoting the destructive action.

Pulmonary Tuberculosis with Prolonged Course in Child.—Navarro has had under observation for eleven years a girl with pulmonary tuberculosis, fever and hemoptysis in her fifth year, and again at intervals during the following years. Tubercle bacilli have been found almost constantly in the sputum during these years, but the girl, now 15, is exceptionally well nourished and well developed, menstruating regularly for three years. The entire left lung seems to be invaded, but the right lung has always presented a normal aspect. There is nothing to suggest syphilis.

Recklinghausen's Disease in Children.—Acuña and Bazán describe eight cases of congenital Recklinghausen's disease, encountered recently. There was nothing to suggest a hereditary or familial character. In two of the children there was malformation of the spine or chest, in addition to the manifestations of the disease; in three, there was evidence of endocrine derangement, and in two, one in each of these two groups, congenital syphilis was plainly manifest. In children, Recklinghausen's disease is usually of an incomplete, abortive type; only the characteristic spots on the skin were found in all. The other manifestations varied, explaining why monosymptomatic Recklinghausen's disease in children is so often overlooked.

Archiv für klinische Chirurgie, Berlin

132: 191-346 (Oct. 30) 1924

Chronic Stenosis of Duodenum. Haberer.—p. 191.
*Acute Arteriomesenteric Duodenal Occlusion. Haberer.—p. 202.
Traumatic Intestinal Stenosis. O. Maier.—p. 212.
Surgical Treatment of True Polycystic Kidney. O. Maier.—p. 226.
Three Cases of True Bladder Diverticulum. O. Maier.—p. 265.
Inguinal Extravesical Prostatectomy. O. Maier.—p. 296.
Acute Osteomyelitis. O. Maier.—p. 303.
Technic and Application of Intraspinal Anesthesia. O. Maier.—p. 317.
Myxomas. E. Paul.—p. 322.
Astragalectomy for Clubfoot. K. von Dittrich.—p. 332.

Acute Arteriomesenteric Constriction of the Duodenum.—Haberer describes a case in a woman, aged 46, two days after an operation for gastric ulcer under local anesthesia. Postural therapy proved ineffective. Roentgen-ray examination the sixth day showed in the transverse portion of the duodenum absolute stenosis. The duodenum was freed and the constricting root of the mesentery shifted to the right, with duodenojejunostomy. The patient recovered rapidly. Haberer considers this case significant because there was no primary dilatation of the stomach, and the roentgen-ray findings were definite and confirmed by the operation.

Jahrbuch für Kinderheilkunde, Berlin

107: 191-258 (Nov.) 1924

Autonomic Nervous System in Sleep. A. Peiper.—p. 191.
*Radiation Treatment of Tetany. Falkenheim and György.—p. 201.
*Thrombophlebitic Splenomegaly. H. Opitz.—p. 211.
Fat Deposits in Infants. W. Lasch.—p. 223.
*Minerals in the Blood in Hemophilia. K. Klinke.—p. 238.
Temporary Blindness in Whooping Cough. I. Langer.—p. 242.

Ultraviolet Rays in Treatment of Tetany.—Falkenheim and György's observations show that in treatment of tetany by the mercury quartz lamp, a latent tetany can be made manifest, and a manifest tetany may become aggravated. The required length of treatment of tetany by radiation corresponds to that for rickets. The ultraviolet rays act indirectly by overcoming the metabolic disturbances of rickets. The authors emphasize the necessity for combination of direct treatment of the tetany with the radiotherapy. They begin with ammonium chlorid and follow with calcium salts. They tabulate the serial findings in twenty-two cases.

Diagnosis and Treatment in Thrombophlebitic Splenomegaly.—Opitz gives a detailed report on two cases of thrombosis of the splenic vein in children, aged 6 and 11. It is characterized by enlargement of the spleen, profuse hemorrhages, anemia, and the reciprocal relation between the size of the spleen and the hemorrhages; the diagnosis is confirmed by leukopenia and thrombopenia. The hemorrhages are dependent on the blood pressure. Only 50-100 c.c. of blood or serum should be injected intravenously, until the bleeding has been stopped; after this, extensive transfusion of blood is an excellent means to overcome the anemia. The danger of fatal hemorrhage is always present. Opitz recommends extirpation of the spleen, not only as a last resort, but also after repeated profuse hemorrhages, possibly with a simultaneous Talma operation. Splenectomy was performed in Opitz' second case; several months after recovery, prolonged high eosinophilia appeared.

Minerals in the Blood in Hemophilia.—Klinke's analysis of the minerals in the blood of two hemophilic children showed as the only positive finding a distinct increase of potassium and chlorin. He assumes the excessive chlorin content to be deposited chiefly in the cellular elements of the blood, particularly in the erythrocytes. The significance of this higher content is not yet known.

Klinische Wochenschrift, Berlin

3: 2081-2128 (Nov. 11) 1924

*The Schick Test. H. Opitz.—p. 2081.
*Diseases from Blood-Group Standpoint. L. Hirszfeld.—p. 2084.
*Nerves of Blood Vessels. F. Brüning.—p. 2087.
Chronic Protein Poisoning. F. Pentimalli.—p. 2090.
*The Capillaries in Diabetes. A. J. Weil.—p. 2093.
*Endocarditis and the Brain. A. Flater.—p. 2094.
*Tonus of the Child Heart. E. Mosler and M. Kretschmer.—p. 2096.
*Astringents and Photosensitivity of Bacteria. S. Amster and P. S. Meyer.—p. 2098.
Sachs and Klopstock's Flocculation Test. E. Heyer.—p. 2099.
"Cancer of the Breast." K. F. Behne.—p. 2101.
"Urobilinometer." Opitz and Brehme.—p. 2101. Reply. Adler.—p. 2101.
*The p_H of Skin Surface. A. Memmesheimer.—p. 2102.
*Reversible Hemolysis. L. Bogendörfer and Halle.—p. 2102.
*Salts and Action of Thyroid. H. Beumer.—p. 2103.
*Treatment of Pericarditis. K. Külbs and H. Schürmeyer.—p. 2104.
*Hygiene of Scrapping Ships. Engelsmann.—p. 2105.
Experimental Research on Syphilis. A. Buschke and M. Gumpert.—p. 2109. Conc'n.
Cutaneous Diphtheria Test. Aristowski and Lepski.—p. 2127.

The Schick Test.—Opitz finds that a negative Schick test does not absolutely disprove diphtheria. The clinical signs are decisive.

Diseases from Blood-Group Standpoint.—Hirszfeld believes that the inherited ability or inability to produce antibodies—especially to diphtheria—is coupled with the blood group. The coincidence of a blood group or other anthropologic structure with a certain predisposition to a disease may be due, however, to the immigration of the special blood group race from an infested to a sanitary region, or vice versa, and the selective influence of the predisposition.

Nerves of Blood Vessels.—Brüning summarizes the results of experiments which apparently testify to the presence of long afferent (sensitive) sympathetic nerves associated with the peripheral blood vessels. He does not attempt to decide the question whether there are long vasomotor pathways in the adventitia.

The Capillaries in Diabetes.—Weil applied capillaroscopy to fifteen diabetics. In eight of the fifteen the corium displayed a yellowish tint, which was in no relation to the lipoid content of the blood. The venules were of a carmin hue and their contours indistinct. Their tonus was low.

Endocarditis and the Brain.—Flater confirms the frequency of leukocyte infiltrates in the cerebral vessels in endocarditis.

Tonus of the Child Heart.—Mosler and Kretschmer examined roentgenologically sixteen healthy children, 6-15 years of age, during Valsalva's experiment. The heart shadow became rapidly smaller, and the blood pressure sank to zero. They point out that the normal child heart shows the same degree of lessened resistance to changes of shape as the weak heart of adults. Therefore children should be kept from overstraining in sport. Breathing exercises are recommended to avert an involuntary Valsalva experiment in gymnastics.

Astringents and the Photosensitivity of Bacteria.—Amster and Meyer found that dilute solutions of tannin (about 1:10,000) or of aluminum chlorid increase the resistance of prodigiosus bacilli to artificial sunlight.

The p_H of Skin Surface.—Memmesheimer estimated the hydrogen ion concentration of the surface of the skin by dropping indicators on it. The normal p_H figures are between 5.2 and 5.8. Roentgen irradiation was followed by an alkaline shifting which was most marked after twenty-four hours. Universal eczema, psoriasis and toxic exanthem gave normal figures.

Reversible Hemolysis.—Bogendörfer and Halle confirm the reversibility of hemolysis. They induced hemolysis by slow addition of distilled water and reversed it by adding a sodium chlorid solution. The stroma of human blood corpuscles accepted dogs' hemoglobin, and vice versa.

Salts and Action of Thyroid.—Beumer observed that disodiumphosphate decreases the creatinuria which follows, in children, after ingestion of thyroid preparations. Calcium chlorid increased and provoked thyrotoxic symptoms. Since thyroid and the phosphate change the metabolism toward the alkalotic side, he believes that the phosphates act by reducing the irritability of the sympathetic.

Treatment of Pericarditis.—Külbs and Schürmeyer find that puncture in cases of pericarditis with effusion is performed less frequently than the welfare of the patients requires. Curschmann's method of puncture in the fifth or sixth intercostal space, inside or outside of the midclavicular line, avoids injury of the mammary artery and the heart. Külbs' technic (scapular line) has also advantages.

Hygiene of Destruction of Ships.—Engelsmann investigated the danger of lead poisoning in workers wrecking ships with burners. The approximate amount of lead in the air inhaled is 0.86 mg. per hundred liters. Masks with valves close to the nose are unsuitable; a long tube is preferable unless it

hampers free breathing. The urine should be examined microscopically every month. Signs of a kidney lesion are more important than any other symptoms of poisoning.

Medizinische Klinik, Berlin

20: 1599-1638 (Nov. 16) 1924

*Prevention and Treatment of Perineal Tears. Kupferberg.—p. 1599.
*Treatment of Pernicious Anemia. G. Walterhöfer and O. Schramm. —p. 1602.
*Choked Disk in Multiple Sclerosis. E. Adler.—p. 1607.
Roentgen Irradiation of Large Areas. E. Reiser.—p. 1608.
*Treatment of Multiple Sclerosis with Spirochetes. E. John.—p. 1610.
*Prognosis of Heart Disease. F. Thormeyer.—p. 1612.
Fibroma at Base of Nose. E. Wodak.—p. 1614.
Agranulocytic Angina. A. Elkeles.—p. 1614.
*Diagnosis of Lead Poisoning. F. Schiff.—p. 1621.
*Dual Action of Calcium. E. Baráth.—p. 1621.
Medical Psychology. H. Fendel.—p. 1623.
Recent Publications on Tuberculosis. H. Gerhartz.—p. 1625.
Obstetrics in Ancient Greece. N. Louros.—p. 1635. Conc'n.

Prevention and Treatment of Perineal Tears.—Kupferberg emphasizes the individual differences in women. Some primiparas present the difficulties of an "old primipara" at 26, while he has encountered old primiparas, aged 35-40, with elastic, supple parts. An episiotomy should precede in primiparas every manipulation which ends with rapid delivery (pelvic extraction, forceps, etc.). It should also be made whenever the perineum is near rupturing (turning blue and then white). Every tear should be sutured immediately, on the operation table, under the best conditions. A thick Hegar dilator (16-18) introduced into the rectum aids in avoiding too deep sutures.

Treatment of Pernicious Anemia. — Walterhöfer and Schramm report on three years of experience with 42 patients on whom they tried their method of treatment of pernicious anemia. They drill a hole in each end of the tibia, and wash the bone marrow out. The average term of life after the operation was seven and a half months. Two patients are still living, thirty-six and thirty-seven months, respectively, after the operation. Of the 20 patients subjected to the treatment in 1923, 14 are living. Of the 5 patients in 1924, 2 have survived to date. Signs of paralysis of the bone marrow and grave nervous symptoms contraindicate the operation even in the opinion of the authors.

Choked Disk in Multiple Sclerosis.—Adler observed a choked disk at first in one eye and, after retrogression of this, in the other eye, in a case of multiple sclerosis.

Treatment of Multiple Sclerosis with Spirochetes.—John treated nine patients with multiple sclerosis by inoculation of the spirochete of African recurrens, cultivated in mice. The results are doubtful.

Prognosis of Heart Disease.—Thormeyer has compiled statistics on 122 cases of heart disease, with the exact history and necropsy findings. The average time of compensation was over thirty-three and a half years when the rheumatism had been acquired between the ages of 1 and 20 years. It was fourteen and a half years in patients with rheumatism between 21 and 30, and only five and six-tenths years if they had acquired it between 31 and 40. The interval between syphilitic infection and decompensation averaged twenty-five and a half years. The average interval between the first and the second phase of decompensation was four years in mitral insufficiency, one year in combination with syphilis, and about eight months in aortic insufficiency. She found a high incidence of syphilitic aortitis.

Microscopic Diagnosis of Lead Poisoning.—Schiff recommends Hoffmann's method (dark-field examination of stained specimens) as the easiest way to detect basophilic stippling.

Dual Action of Calcium.—Baráth found, after intravenous injections of calcium chlorid, a first phase of stimulation of the vagus before the signs of sympathetic irritation set in.

Monatsschrift für Geb. und Gynäkologie, Berlin

67: 327-393 (Nov.) 1924

Essential Dyspareunia. Edelberg and Galant.—p. 327.
*Pregnancy After Nephrectomy. R. Borelius.—p. 340.
Present Status of the Pulmonary Tuberculosis and Pregnancy Question. B. Bienenfeld.—p. 348.
Cystic Changes in Ovaries Accompanying Mole and Chorio-Epithelioma. H. Küstner.—p. 359.
Mortality Expectancy in Gynecologic Operations. Neuwirth.—p. 370.
The Physician and Privileged Communications. Bähr.—p. 373.

Pregnancy After Nephrectomy.—Borelius bases his conclusions on nine patients who, after removal of one kidney, had passed successfully through normal pregnancies. Preliminary examination in all cases had shown the second kidney to be sound, with one exception. In this case, the second kidney was somewhat affected, and the nephrectomy was regarded as merely a palliative measure, but the second kidney recuperated completely afterward. In three instances, nephrectomy was made during pregnancy, with favorable results except in one case, in which premature delivery became necessary. The literature also indicates that after nephrectomy, with the remaining kidney healthy, the pregnancy took its normal course. There is no evidence of increased frequency of abortions after nephrectomy. An existing pregnancy does not contraindicate nephrectomy.

Münchener medizinische Wochenschrift, Munich

71: 1595-1634 (Nov. 14) 1924

*Present Tendencies of Psychiatry. O. Bumke.—p. 1595.
*Sports and Internal Diseases. H. Rautmann.—p. 1599.
*Observations on Ski Races. W. Parrisius.—p. 1601.
*Carbon Balance in Avitaminosis. A. Bickel.—p. 1603.
Surgery of Gastric and Duodenal Ulcers. M. Friedemann.—p. 1604.
*The Gas Question in Pneumothorax. O. Roepke.—p. 1608.
*Clamping the Parametrium in Hemorrhages. W. S. Flatau.—p. 1609.
*Venesection in Air Embolism. H. Jessen.—p. 1611.
*Kidney Insufficiency Test. E. Becher.—p. 1611.
Preparation of Sections. B. T. Terry.—p. 1612.
Fluid for Anatomic Specimens. H. Hamdi.—p. 1613.
Lumbar Punctures in Poliomyelitis. A. Schanz.—p. 1613.
What Should the Patient Learn About His Condition? Krecke. —p. 1613.
Professional Secrecy. Schiedermair.—p. 1616.
*Statistics of France and Germany. E. Roesle.—p. 1616.
The Physician and Social Insurance. Scholl.—p. 1618.
Medicine During the Renaissance. G. Honigmann.—p. 1619.

Present Tendencies of Psychiatry.—Bumke publishes an interesting criticism of the present tendencies in psychiatry.

Sports and Internal Diseases.—Rautmann deplores the frequent prohibition of gymnastics in children with heart murmur. Even in an affection of the heart—especially mitral insufficiency—careful gymnastics may actually benefit. A good sign of adequacy of the heart for the task is the narrowing of the heart shadow after exertion. If the heart becomes dilated, the strain was too great for it. He observed that ski experts who had blood pressure over 130 mm. mercury, before the races, became exhausted.

Observations on Ski Races.—Parrisius examined over 100 participants in the German championship ski races for 17 kilometers. The majority had physical defects, the champion, an aortic insufficiency. Most of them—with blood pressure up to 150 mm. mercury before the racing—arrived in a good condition; the blood pressure was lower after the race than before.

Carbon Balance in Avitaminosis.—Bickel found in avitaminosis a lowered respiratory quotient and also a lowered oxygen intake. In spite of this, the body loses in weight. His collaborator Shimizu found in the urine an increase in carbon not combined with nitrogen. This shows clearly the inadequacy of determinations of gas metabolism alone. He has previously demonstrated that insulin acts on this avitaminotic disturbance. This, as well as his and Collazo's demonstration of the glycogen synthesis after insulin, was confirmed by Brugsch and his collaborators. He believes that the pathologic increase in urinary carbon indicates a similar normal process producing energy by cleavage processes of carbon compounds—not only by their oxidation.

The Gas Question in Pneumothorax.—Roepke uses exclusively carbon dioxid for the first filling. It may be absorbed by the blood thirty times more readily than oxygen, and thus avoids the danger of embolism much better. The disadvantage is its rapid resorption. Therefore the subsequent fillings have to be done with air. He filters it and washes it with a disinfecting fluid. He observed only in 20 per cent. of his patients a small effusion, and in no case an empyema.

Clamping the Parametrium in Hemorrhages. — Flatau reports two excellent results with Henkel's method. In grave

hemorrhages from the uterus—especially after placenta praevia—the uterus is drawn down, and a broad pressure forceps (Doyen's or Jacob's) is applied to the parametrium deep on each side. The bleeding stops immediately and both forceps may be removed after several hours.

Venesection in Air Embolism.—H. Jessen reports four instances of recovery from air embolism which had occurred in administration of pneumothorax. He uses large venesections (over 300-400 c.c.), as recommended by F. Jessen. A sterile knife for venesection should always be ready when a pneumothorax is being filled.

Kidney Insufficiency Test.—Becher uses the xanthoprotein test in the protein-free filtrate from blood for estimation of insufficiency of the kidneys. The test indicates the presence of aromatic compounds, such as tyrosin.

Statistics of France and Germany.—Roesle compares German and French population statistics from 1920 to 1923. The percentage of births in large German cities has fallen since 1921 below that of French cities, reaching 15.1 in 1923 against the French 16.4. The rural districts keep the German total number above the French, but the better German surplus is due chiefly to the lower mortality.

Wiener klinische Wochenschrift, Vienna

37: 1179-1204 (Nov. 13) 1924

*Gaucher's Disease. E. Epstein.—p. 1179.
*Resection of Gastric Cancer. H. Finsterer.—p. 1181. Conc'n.
*Parenchymatous Gastric Hemorrhages. A. Gödel.—p. 1184.
Chemotherapy of Tuberculosis. T. Koizumi.—p. 1188.
*Pregnancy After Roentgen Treatment. W. Schiller II.—p. 1190.
*Pituitary and Deconcentration Neurosis. E. Kugler.—p. 1191.
*Puzzling Case of Murder or Suicide. H. Tittinger.—p. 1192.
Inflammations of Female Sex Organs. C. Bucura. Supplement.—pp. 1-8.

Gaucher's Disease.—Epstein found megakaryocytes in the spleen of a man who had died from tuberculosis and Gaucher's disease. Some of these cells contained a similar substance to that found in Gaucher's cells. This substance is not of uniform structure. A crystallizing cerebrosid, which was identified by Lieb as kerasin, was obtained from the spleen in this case. Besides this, there were ether-insoluble saturated phosphatids, but no cholesterol nor ether-soluble lecithin. Histologic reactions do not allow a correct classification of lipoids. The disease belongs to the group of the "histocytomatoses," which term he suggests, instead of reticuloendotheliosis.

Resection of Gastric Cancer.—Finsterer reviews the results of his resections of the stomach for cancer. They are excellent in the localized cases—40 per cent. free from recurrence after three years and 31 per cent. after five. The results surpassed all expectations in the cases in which the cancer had invaded the liver or pancreas—twenty-six of 219 operative cancer patients are well after intervals of from five to thirteen years. The high mortality of exploratory laparotomy (10-20 per cent.) was only in those cases in which the operation was done to decide whether resection was still possible. The mortality would be lower in beginning cases.

So-Called Parenchymatous Gastric Hemorrhages.—Gödel's patient was an old woman who died after several grave hemorrhages from the stomach. No local macroscopic lesions were found at necropsy, and the preliminary diagnosis was "parenchymatous bleeding." Histologic examination revealed extensive arteriosclerosis of the vessels of the stomach and miliary aneurysms. The cervical and celiac ganglions were degenerated. He quotes five similar cases.

Pregnancy After Roentgen Treatment.—Schiller reports the history of a woman, 43 years of age, who had never been pregnant. She had uterine fibroids, and a premature menopause was induced by roentgen rays on account of profuse hemorrhages. Six months later, menstruation reappeared once, and after this the patient became pregnant. She had eclampsia at labor, and a normal baby was delivered by high forceps. The uterus had to be amputated later. The child was still normal when 18 months old.

Pituitary Deconcentration Neurosis.—Kugler observed in several patients with pituitary syndromes an impossibility to concentrate the mind. He noted a beneficial effect from injections of pituitary extract.

Murder or Suicide?—Tittinger reports a medicolegal case of suspected murder: A man was found in a Roumanian village hung up. The left hand was missing, and a large pool of blood was on the floor. The brother of the deceased—whom he was known to have hated because of inheritance quarrels—was suspected of murder. Necropsy revealed typical signs of suffocation from strangulation. Four small impressions without suffusions, situated in one line, were at the edge of the wound on the forearm. The skin was clean, without blood stains, the ulna severed, and the marrow missing for a depth of 2 cm. The hand was not found. The expert testimony explained the wound as inflicted after death, probably by a stray dog, which ate the hand and licked the stump clean. The corpse was far from bloodless. The blood on the floor was from a calf which the man, a known drunkard, had slaughtered in his room, the night before committing suicide.

Zeitschrift für Geburtshülfe und Gynäk., Stuttgart

88: 1-248 (Oct. 11) 1924

Volume-Sphygmobolometer Examinations in Pregnancy and Puerperium. W. Haupt.—p. 1.
Congenital Ichthyosis. G. Hirsch.—p. 28.
Glandular Tissue in Cesarean Scar. F. C. Geller.—p. 34.
Intramural Portion of Oviduct. Hermstein and Neustadt.—p. 43.
Uterus Cervix Toward End of Pregnancy. H. Kiehne.—p. 60.
Operations in Case of Extra-Uterine Pregnancy and Benign Tumors. I. Amreich.—p. 68.
Active Participation of the Child in Delivery. H. Sellheim.—p. 96.
Metabolism of Ions in Pregnancy. S. Wieser.—p. 108.
Vitamins and Growth of the Fetus. S. Peller and F. Bass.—p. 127.
Pathology and Therapy of Malignant Ovarian Tumors. E. E. Pribram.—p. 134.
Molding of Skull of Fetus During Delivery. W. Vogel.—p. 158.
Treatment of Febrile Abortion. E. Henrard.—p. 168.
Implantation of Closed Horn of Uterus Bicornis. P. Strassmann.—p. 199.
Implantation of Tube in Uterus. P. Strassmann.—p. 208.
Experimental Research on Organotherapy. B. Zondek.—p. 237.

Zeitschrift für Krebsforschung, Berlin

21: 415-517 (Oct. 22) 1924

*Histologic Study of Cause of Cancer. O. Grütz.—p. 415.
*Morphogenesis and Histogenesis of Experimental Cancer. W. Stefko.—p. 432.
Effect of Pregnancy and Lactation on Tar Epithelioma in Rabbits. N. Krotkina.—p. 450.
Influence of Reduced Surface Tension on Mouse Cancer. C. Kagan.—p. 453.
Surface Tension in Malignant Tumors. B. M. Solowiew.—p. 456.
Biochemical Serologic Research on Carcinoma. P. Illing.—p. 463.
Primary Sarcoma on Scalp. N. Sysak.—p. 469.
Experimental Tumor Immunity by Dyspnea (Mice). E. Schwarz.—p. 472.
The Sympathetic System in Carcinoma Patients. L. Margolin.—p. 484.
Further Research on Tar Cancer in Mice. V. E. Mertens.—p. 494.
Prevention of Malignant Tumors. H. G. Jacubsohn.—p. 502.

Histology of Cancer.—Grütz' microscopic research in three cases of Bowen's precancerous dermatosis has convinced him that Bierich's theory of a pathologic transformation of the "protoplasm system" in malignant disease deserves greater attention. It calls for research on cancer and precancerous conditions from a new standpoint.

Experimental Cancers.—Stefko found it impossible to induce tar cancer in the skin of amphibians (frogs and toads). A toxic action on the tissues below and on the heart, liver and lungs was apparent, and lymphangiomas sometimes developed. The animals all died. He adds that lymphangiomas from tar have not been encountered in tar cancer in mammals.

Zeitschrift für Tuberkulose, Leipzig

41: 81-160 (Nov.) 1924

The Cavity of Pulmonary Tuberculosis: Diagnosis and Healing. K. Turban and H. Staub.—p. 81.
Chemotherapy in Experimental Tuberculosis in Guinea-Pigs. F. Klopstock.—p. 119.
Tuberculosis Infection by the Saliva. R. Hollmann.—p. 127.

Zentralblatt für Chirurgie, Leipzig

51: 2520-2566 (Nov. 15) 1924

Operation for Biliary Fistula. A. Nussbaum.—p. 2520.
*Operative Treatment of Jejunal Peptic Ulcer. Schwarz.—p. 2521.
Two-Stage Resection of Duodenal Ulcer. H. Finsterer.—p. 2524.
*Sympathectomy in Bone and Joint Tuberculosis. Sebestyén.—p. 2528.
*Sympathectomy in Angina Pectoris. W. S. Lewit.—p. 2529.

Use of Loops of Thread for Removal of Portions of Tissue Deep in Operative Field. A. Heyn.—p. 2536.
"Arthrodesis of Ankle by Rib Transplant." Kosinski.—p. 2540.

Operative Treatment of Jejunal Peptic Ulcer.—Schwarz emphasizes that the radical elimination of a peptic jejunal ulcer that arises following anterior gastro-enterostomy is usually a much less serious intervention than resection after posterior gastro-enterostomy. He regards primary resection of the stomach together with the gastric ulcer as the method of choice.

No Benefit from Periarterial Sympathectomy in Bone and Joint Tuberculosis.—Amputation was required later in five of the ten cases in which Sebestyén had applied periarterial sympathectomy, and no permanent benefit was observed in any instance. The local circulation was decidedly improved at first, but this effect was soon lost, even before the severed fibers had had time to regenerate.

Cervical Sympathectomy as Palliative Operation in Angina Pectoris.—Lewit is convinced that the nourishment of the heart must suffer more or less from the cervical sympathectomy, and that the effect is not durable. But the immediate relief from the pains may render this merely palliative operation advisable in certain cases. In a case described, the banishing of the pains seemed to remove the automatic brake which had kept the man from overexerting his damaged heart. Lewit admits that if the heart happens to be comparatively sound, it is possible that the operation might tide the patient along to complete recuperation so far as anatomic conditions permitted. Otherwise, it has more drawbacks than advantages.

Casopis lekaruv ceskych, Prague

63: 1653-1688 (Nov. 15) 1924

*Malignant Leukopenia. Pelnár.—p. 1653.
*Atrophy of Frontal Lobe. A. Heveroch.—p. 1655.
*Metapneumonic Thyroiditis. J. Bedrna.—p. 1661.
Tumors of the Nasopharynx. B. Kryze.—p. 1665. Cont'd.
Malaria Treatment of Paralysis. H. Bondy.—p. 1671.

Malignant Leukopenia.—Pelnár describes a case of acute leukemia with low leukocyte counts (dropping from 4,750 to 1,070), and a low percentage of neutrophils. The low neutrophil counts seem to be especially malignant when combined with low absolute counts. He groups under the name of malignant leukopenia all the septic or leukemic conditions with this syndrome, as well as agranulocytic angina. He believes that the absence of hemorrhages in the latter condition does not warrant its separation as a different entity.

Loss of Initiative with Atrophy of Frontal Lobe.—Heveroch's patient was demented. The most prominent symptom was a lack of initiative (a cigaret, a bottle and a coin were the only articles he took in his hand spontaneously). No neurologic symptoms were noted. Necropsy revealed atrophy of the brain cortex, especially of the frontal convolutions. He believes that cerebellar symptoms develop only when the white substance of the lobe is affected.

Metapneumonic Thyroiditis.—Bedrna publishes the history of two cases of suppuration of the thyroid after pneumonia. Both patients recovered after operation.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

2: 1955-2082 (Oct. 18) 1924

*Hereditary Optic Neuritis. Van Heuven and G. Oltmans, Jr.—p. 1958.
Nongonorrheal Urethritis. K. Edel.—p. 1966.
Coincidence of Hydatidiform and Varicose Mole. Van Dongen.—p. 1975.
Diagnosis of Hypertension or Hypotension from the Systolic and Diastolic Blood Pressure. J. T. Peters.—p. 1978.
Chorea Induced by Malaria. W. Beyerman.—p. 1987.
Pentosuria in Boy Aged 3. J. de Hartogh, Jr.—p. 1989.
Present Status of Spirochetosis Icterohaemorrhagiae. W. H. J. Ivens.—p. 1990.

Hereditary Optic Neuritis.—Van Heuven and Oltmans assert that probably many cases diagnosed as ordinary optic neuritis, in reality belong to the group of hereditary Leber's disease. They give charts of three families with four to six instances of this type of optic atrophy in two or three generations. During the early, the neuritis stage, they noted fine and tortuous capillaries close to the optic nerve in the fundus. When congested, they give the impression of a hemorrhage, and they disappear as atrophy supervenes.

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*Senescent Shriveling of Brain. A. Gans.—p. 2084.
*Thrombosis and Corpulence. E. Hammer and H. J. Oltmanns.—p. 2101.
Chronic Abscess in Bone. T. S. Klots.—p. 2105.
Hyalitis with Epidemic Meningitis. R. Metz-Klok.—p. 2110.
*The Concentration-Action Curve of Insulin. S. E. de Jongh.—p. 2115.
*Areas of Turbidity in Diluted Blood. G. C. van Walsem.—p. 2123.
Case of Rheumatic Polyarthritis. C. Schaap.—p. 2126.
Spontaneous Version of Fetus During Delivery. Van Vugt.—p. 2132.

Senescent Shriveling of Frontal Lobes.—Heredity was unmistakably a factor in five of the eight cases compiled by Gans in which elderly patients presented symptoms explained at necropsy by the shriveling of the frontal lobes. It seems to be merely a pathologic exaggeration of the natural senescent atrophy. The first symptoms were a loss of skill in the daily tasks. The farmer found he could not harness his horse, the housewife could not cook the meal, the clerk was unable to make change. They put their clothes on incorrectly, and buttoned them awry. Names of common articles were forgotten and there was a disinclination to speak, or a tendency to meaningless repetitions, but the words were articulated well, and the handwriting was not modified.

Thrombosis and Corpulence.—Hammer and Oltmanns' analysis of 130 cases of thrombosis seems to show a connection between thrombosis and embolism and a tendency to obesity.

Anti-Insulin.—De Jongh theorizes to explain the fact that there seem to be two levels of insulin concentration which induce convulsions in rabbits, with a wide range between them free from the convulsion-inducing tendency. The effective therapeutic dose in man corresponds to the upper level. He ascribes the phenomenon to the presence of an anti-insulin, and remarks that it explains certain differences sometimes observed in the action of insulin on man and on rabbits.

Circumscribed Turbidity in Diluted Blood.—Van Walsem refers to the different refracting properties of different portions of an apparently homogeneous fluid, turbid areas alternating with clear areas when the fluid is shaken up, and the arrangement persisting or forming anew on repeated shaking. He has noted this phenomenon even in diluted blood, and queries whether it may not have diagnostic significance. It seems to be a crystallization phenomenon, the shaking up of the fluid arranging the crystals parallel with the current, like young fish in a hatchery tank.

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Varying Symptoms of German Measles. G. Lindberg.—p. 1.
*Whooping Cough Vaccine. Meyer et al.—p. 21.
*Hirschsprung's Syndrome Caused by Spasm. I. Behring and K. O. af Klercker.—p. 35.
Extrapyramidal Symptoms in Sepsis in New-Born. C. de Lange.—p. 60.

Prophylactic and Therapeutic Value of Whooping Cough Vaccine from Bordet-Gengou Bacilli.—Meyer, Kristensen and Sörensen studied reports from hospital experiments, general practice, children's homes, and also an extensive investigation in the Faroe Islands. They found favorable prophylactic results in many reports. The great majority indicated that the vaccine given during or prior to incubation attenuated the disease, and advantage resulted in many cases when the vaccine was given in the catarrhal stage or the first week of the paroxysmal stage. They advise intramuscular injection, perhaps in larger doses and more frequently.

Hirschsprung's Syndrome Caused by Spasm.—Behring and Klercker describe a new case in which clinical examination, operation and necropsy showed the cause to be intestinal obstruction from muscular spasm, 14 cm. above the anal sphincter. A button found above the contraction ring may have been a contributing factor. They do not consider intestinal spasm as the only or even the most common cause of the Hirschsprung syndrome, but they believe that localized, functional bowel spasms may be an unquestionable cause. They suggest that contraction rings may normally exist, so-called functional sphincter mechanisms in the intestinal tract, particularly between the sigmoid flexure and the rectum. This "sphincter tertius" here may have the important function in fetal life of preventing the passage of meconium into the rectum, which would help to explain the development of a permanent contraction at this place later.